

## SEQUENCE LISTING

<110> University of Rochester

Yule, D.I.  
Wagner II, Larry

<120> Inositol 1,4,5-trisphosphate receptor  
mutants and uses thereof

<130> 21108.0042P1

<150> 60/539,245  
<151> 2004-01-26

<160> 32

<170> FastSEQ for Windows Version 4.0

<210> 1  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

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Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
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Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
35 40 45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
50 55 60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
65 70 75 80  
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
85 90 95  
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
100 105 110  
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
115 120 125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
130 135 140  
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
145 150 155 160  
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
165 170 175  
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
180 185 190  
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
195 200 205  
Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
210 215 220

Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700

Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
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 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
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 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
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 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
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 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
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 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
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 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180

Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
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 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
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 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
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 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580  
 Ala Arg Arg Asp Glu Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
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 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
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 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
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Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
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 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Ala Leu  
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 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
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 Arg Arg Glu Ser Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
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 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
 1730 1735 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
 1745 1750 1755 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
 1765 1770 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
 1780 1785 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
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 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
 1810 1815 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
 1825 1830 1835 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
 1845 1850 1855  
 Ser Arg Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
 1860 1865 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
 1875 1880 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
 1890 1895 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
 1905 1910 1915 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
 1925 1930 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
 1940 1945 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
 1955 1960 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
 1970 1975 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
 1985 1990 1995 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
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 Lys Asn Asn Ala Ser Lys Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
 2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
 2100 2105 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
 2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
 2130 2135 2140

Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
 2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
 2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
 2195 2200 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
 2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
 2245 2250 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
 2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
 2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
 2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
 2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
 2340 2345 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
 2355 2360 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
 2370 2375 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
 2385 2390 2395 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
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 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
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 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
 2435 2440 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
 2450 2455 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
 2465 2470 2475 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
 2485 2490 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
 2500 2505 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
 2515 2520 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Ile Val Leu Asn Leu  
 2530 2535 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
 2545 2550 2555 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
 2565 2570 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
 2580 2585 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
 2595 2600 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
 2610 2615 2620

Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
 2625 2630 2635 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
 2645 2650 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
 2660 2665 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
 2675 2680 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
 2690 2695 2700  
 Asn Pro Gln Gln Pro Ala  
 2705 2710

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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

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 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285

His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765

Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
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 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
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 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
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 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
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 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245

Gln Gln Asn Gln Ala Leu Leu His His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580  
 Ala Arg Arg Asp Glu Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
 1685 1690 1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
 1700 1705 1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
 1715 1720 1725

His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
 1730 1735 1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Ser Leu Thr Ser Phe Gly  
 1745 1750 1755 1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
 1765 1770 1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
 1780 1785 1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
 1795 1800 1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
 1810 1815 1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Gly Asn Thr Thr Ile Gln His  
 1825 1830 1835 1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
 1845 1850 1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
 1860 1865 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Asp Asp  
 1875 1880 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
 1890 1895 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
 1905 1910 1915 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
 1925 1930 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
 1940 1945 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
 1955 1960 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
 1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
 2005 2010 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
 2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
 2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
 2050 2055 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
 2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
 2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
 2115 2120 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
 2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
 2165 2170 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
 2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
 2195 2200 2205

Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
 2210 2215 2220  
 Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685

Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
 2725 2730 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
 2740 2745

<210> 3  
<211> 2710  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

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 1 5 10 15  
Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45

Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320

Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
                  325                 330                 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
                  340                 345                 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
                  355                 360                 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
                  370                 375                 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
                  385                 390                 395                 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
                  405                 410                 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
                  420                 425                 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
                  435                 440                 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
                  450                 455                 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
                  465                 470                 475                 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
                  485                 490                 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
                  500                 505                 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
                  515                 520                 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
                  530                 535                 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
                  545                 550                 555                 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
                  565                 570                 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
                  580                 585                 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
                  595                 600                 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
                  610                 615                 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
                  625                 630                 635                 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
                  645                 650                 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
                  660                 665                 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
                  675                 680                 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
                  690                 695                 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
                  705                 710                 715                 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
                  725                 730                 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
                  740                 745                 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
                  755                 760                 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
                  770                 775                 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
                  785                 790                 795                 800

Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
                   805                  810                  815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
                   820                  825                  830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
                   835                  840                  845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
                   850                  855                  860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
                   865                  870                  875                  880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
                   885                  890                  895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
                   900                  905                  910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
                   915                  920                  925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
                   930                  935                  940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
                   945                  950                  955                  960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
                   965                  970                  975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
                   980                  985                  990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
                   995                  1000                  1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
                   1010                  1015                  1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
                   1025                  1030                  1035                  1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
                   1045                  1050                  1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
                   1060                  1065                  1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
                   1075                  1080                  1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
                   1090                  1095                  1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
                   1105                  1110                  1115                  1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
                   1125                  1130                  1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
                   1140                  1145                  1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
                   1155                  1160                  1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
                   1170                  1175                  1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
                   1185                  1190                  1195                  1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
                   1205                  1210                  1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
                   1220                  1225                  1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
                   1235                  1240                  1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
                   1250                  1255                  1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
                   1265                  1270                  1275                  1280

Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
                  1285                 1290                 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
                  1300                 1305                 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
                  1315                 1320                 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
                  1330                 1335                 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
                  1345                 1350                 1355                 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
                  1365                 1370                 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
                  1380                 1385                 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
                  1395                 1400                 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
                  1410                 1415                 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
                  1425                 1430                 1435                 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
                  1445                 1450                 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
                  1460                 1465                 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
                  1475                 1480                 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
                  1490                 1495                 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
                  1505                 1510                 1515                 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
                  1525                 1530                 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
                  1540                 1545                 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
                  1555                 1560                 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
                  1570                 1575                 1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
                  1585                 1590                 1595                 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
                  1605                 1610                 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
                  1620                 1625                 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
                  1635                 1640                 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
                  1650                 1655                 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
                  1665                 1670                 1675                 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
                  1685                 1690                 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
                  1700                 1705                 1710  
 Arg Arg Glu Ser Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
                  1715                 1720                 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Gly Pro Gly Ser Gly Ser  
                  1730                 1735                 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
                  1745                 1750                 1755                 1760

Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
                  1765                 1770                 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
                  1780                 1785                 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
                  1795                 1800                 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
                  1810                 1815                 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
                  1825                 1830                 1835                 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
                  1845                 1850                 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
                  1860                 1865                 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
                  1875                 1880                 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
                  1890                 1895                 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
                  1905                 1910                 1915                 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
                  1925                 1930                 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
                  1940                 1945                 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
                  1955                 1960                 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
                  1970                 1975                 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
                  1985                 1990                 1995                 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
                  2005                 2010                 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
                  2020                 2025                 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
                  2035                 2040                 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
                  2050                 2055                 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
                  2065                 2070                 2075                 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
                  2085                 2090                 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
                  2100                 2105                 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
                  2115                 2120                 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
                  2130                 2135                 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
                  2145                 2150                 2155                 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
                  2165                 2170                 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
                  2180                 2185                 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
                  2195                 2200                 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
                  2210                 2215                 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
                  2225                 2230                 2235                 2240

Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
                  2245                 2250                 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
                  2260                 2265                 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
                  2275                 2280                 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
                  2290                 2295                 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
                  2305                 2310                 2315                 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
                  2325                 2330                 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
                  2340                 2345                 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
                  2355                 2360                 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
                  2370                 2375                 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
                  2385                 2390                 2395                 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
                  2405                 2410                 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
                  2420                 2425                 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
                  2435                 2440                 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
                  2450                 2455                 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
                  2465                 2470                 2475                 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
                  2485                 2490                 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
                  2500                 2505                 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
                  2515                 2520                 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Ile Val Leu Asn Leu  
                  2530                 2535                 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
                  2545                 2550                 2555                 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
                  2565                 2570                 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
                  2580                 2585                 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
                  2595                 2600                 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
                  2610                 2615                 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
                  2625                 2630                 2635                 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
                  2645                 2650                 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
                  2660                 2665                 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
                  2675                 2680                 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
                  2690                 2695                 2700  
 Asn Pro Gln Gln Pro Ala  
                  2705                 2710

<210> 4  
<211> 2749  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 4  
Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
1               5               10               15  
Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
20               25               30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
35               40               45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
50               55               60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
65               70               75               80  
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
85               90               95  
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
100              105              110  
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
115              120              125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
130              135              140  
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
145              150              155              160  
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
165              170              175  
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
180              185              190  
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
195              200              205  
Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
210              215              220  
Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
225              230              235              240  
Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
245              250              255  
Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
260              265              270  
Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
275              280              285  
His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
290              295              300  
Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
305              310              315              320  
Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
325              330              335  
Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
340              345              350  
Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
355              360              365  
Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
370              375              380

Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
     405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
     420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
     435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
     450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
     485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
     500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
     515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
     530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
     565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
     580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
     595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
     610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
     645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
     660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
     675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
     690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
     725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
     740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
     755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
     770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
     805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
     820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
     835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
     850 855 860

Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895

Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
 1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340

Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
 1685 1690 1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
 1700 1705 1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
 1715 1720 1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
 1730 1735 1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Ser Leu Thr Ser Phe Gly  
 1745 1750 1755 1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
 1765 1770 1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
 1780 1785 1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
 1795 1800 1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
 1810 1815 1820

Leu Leu Ala Ile Ala Leu Leu Glu Gly Asn Thr Thr Ile Gln His  
 1825 1830 1835 1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
     1845 1850 1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
     1860 1865 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
     1875 1880 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
     1890 1895 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
 1905 1910 1915 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
     1925 1930 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
     1940 1945 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
     1955 1960 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
     1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
     2005 2010 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
     2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
     2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
     2050 2055 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
     2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
     2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
     2115 2120 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
     2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
     2165 2170 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
     2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
     2195 2200 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
     2210 2215 2220  
 Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
     2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
     2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
     2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
     2290 2295 2300

Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
 2725 2730 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
 2740 2745

<210> 5  
 <211> 2710  
 <212> PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 5

Met	Ser	Asp	Lys	Met	Ser	Ser	Phe	Leu	His	Ile	Gly	Asp	Ile	Cys	Ser
1				5				10				15			
Leu	Tyr	Ala	Glu	Gly	Ser	Thr	Asn	Gly	Phe	Ile	Ser	Thr	Leu	Gly	Leu
								20		25					30
Val	Asp	Asp	Arg	Cys	Val	Val	Gln	Pro	Glu	Ala	Gly	Asp	Leu	Asn	Asn
					35		40					45			
Pro	Pro	Lys	Lys	Phe	Arg	Asp	Cys	Leu	Phe	Lys	Leu	Cys	Pro	Met	Asn
					50		55					60			
Arg	Tyr	Ser	Ala	Gln	Lys	Gln	Phe	Trp	Lys	Ala	Ala	Lys	Pro	Gly	Ala
					65		70		75				80		
Asn	Ser	Thr	Thr	Asp	Ala	Val	Leu	Leu	Asn	Lys	Leu	His	His	Ala	Ala
					85		90					95			
Asp	Leu	Glu	Lys	Gln	Asn	Glu	Thr	Glu	Asn	Arg	Lys	Leu	Leu	Gly	
					100		105					110			
Thr	Val	Ile	Gln	Tyr	Gly	Asn	Val	Ile	Gln	Leu	Leu	His	Leu	Lys	Ser
					115		120					125			
Asn	Lys	Tyr	Leu	Thr	Val	Asn	Lys	Arg	Leu	Pro	Ala	Leu	Leu	Glu	Lys
					130		135					140			
Asn	Ala	Met	Arg	Val	Thr	Leu	Asp	Glu	Ala	Gly	Asn	Glu	Gly	Ser	Trp
					145		150		155				160		
Phe	Tyr	Ile	Gln	Pro	Phe	Tyr	Lys	Leu	Arg	Ser	Ile	Gly	Asp	Ser	Val
					165		170					175			
Val	Ile	Gly	Asp	Lys	Val	Val	Leu	Asn	Pro	Val	Asn	Ala	Gly	Gln	Pro
					180		185					190			
Leu	His	Ala	Ser	Ser	His	Gln	Leu	Val	Asp	Asn	Pro	Gly	Cys	Asn	Glu
					195		200					205			
Val	Asn	Ser	Val	Asn	Cys	Asn	Thr	Ser	Trp	Lys	Ile	Val	Leu	Phe	Met
					210		215					220			
Lys	Trp	Ser	Asp	Asn	Lys	Asp	Asp	Ile	Leu	Lys	Gly	Gly	Asp	Val	Val
					225		230		235				240		
Arg	Leu	Phe	His	Ala	Glu	Gln	Glu	Lys	Phe	Leu	Thr	Cys	Asp	Glu	His
					245		250					255			
Arg	Lys	Lys	Gln	His	Val	Phe	Leu	Arg	Thr	Thr	Gly	Arg	Gln	Ser	Ala
					260		265					270			
Thr	Ser	Ala	Thr	Ser	Ser	Lys	Ala	Leu	Trp	Glu	Val	Glu	Val	Val	Gln
					275		280					285			
His	Asp	Pro	Cys	Arg	Gly	Gly	Ala	Gly	Tyr	Trp	Asn	Ser	Leu	Phe	Arg
					290		295					300			
Phe	Lys	His	Leu	Ala	Thr	Gly	His	Tyr	Leu	Ala	Glu	Val	Asp	Pro	
					305		310		315				320		
Asp	Phe	Glu	Glu	Cys	Leu	Glu	Phe	Gln	Pro	Ser	Val	Asp	Pro	Asp	
					325		330					335			
Gln	Asp	Ala	Ser	Arg	Ser	Arg	Leu	Arg	Asn	Ala	Gln	Glu	Lys	Met	Val
					340		345					350			
Tyr	Ser	Leu	Val	Ser	Val	Pro	Glu	Gly	Asn	Asp	Ile	Ser	Ser	Ile	Phe
					355		360					365			
Glu	Leu	Asp	Pro	Thr	Thr	Leu	Arg	Gly	Gly	Asp	Ser	Leu	Val	Pro	Arg
					370		375					380			
Asn	Ser	Tyr	Val	Arg	Leu	Arg	His	Leu	Cys	Thr	Asn	Thr	Trp	Val	His
					385		390		395					400	
Ser	Thr	Asn	Ile	Pro	Ile	Asp	Lys	Glu	Glu	Glu	Lys	Pro	Val	Met	Leu
					405		410					415			
Lys	Ile	Gly	Thr	Ser	Pro	Leu	Lys	Glu	Asp	Lys	Glu	Ala	Phe	Ala	Ile
					420		425					430			

Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
         435                    440                    445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
         450                    455                    460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
         465                    470                    475                    480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
         485                    490                    495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
         500                    505                    510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
         515                    520                    525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
         530                    535                    540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
         545                    550                    555                    560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
         565                    570                    575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
         580                    585                    590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
         595                    600                    605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
         610                    615                    620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
         625                    630                    635                    640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
         645                    650                    655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
         660                    665                    670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
         675                    680                    685  
 Ala Gly Glu Asp Glu Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
         690                    695                    700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
         705                    710                    715                    720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
         725                    730                    735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
         740                    745                    750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
         755                    760                    765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
         770                    775                    780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
         785                    790                    795                    800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
         805                    810                    815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
         820                    825                    830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
         835                    840                    845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
         850                    855                    860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
         865                    870                    875                    880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
         885                    890                    895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
         900                    905                    910

Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
       915                 920                 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Gly Phe Leu Pro Met  
       930                 935                 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
       945                 950                 955                 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
       965                 970                 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
       980                 985                 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
       995                 1000                1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
       1010                1015                1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
       1025                1030                1035                1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
       1045                1050                1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
       1060                1065                1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
       1075                1080                1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
       1090                1095                1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
       1105                1110                1115                1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
       1125                1130                1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
       1140                1145                1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
       1155                1160                1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
       1170                1175                1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
       1185                1190                1195                1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
       1205                1210                1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
       1220                1225                1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
       1235                1240                1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
       1250                1255                1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
       1265                1270                1275                1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
       1285                1290                1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
       1300                1305                1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
       1315                1320                1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
       1330                1335                1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
       1345                1350                1355                1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
       1365                1370                1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
       1380                1385                1390

Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
                  1395                 1400                 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
                  1410                 1415                 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
                  1425                 1430                 1435                 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
                  1445                 1450                 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
                  1460                 1465                 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
                  1475                 1480                 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
                  1490                 1495                 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
                  1505                 1510                 1515                 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
                  1525                 1530                 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
                  1540                 1545                 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
                  1555                 1560                 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
                  1570                 1575                 1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
                  1585                 1590                 1595                 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
                  1605                 1610                 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
                  1620                 1625                 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
                  1635                 1640                 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
                  1650                 1655                 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
                  1665                 1670                 1675                 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
                  1685                 1690                 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
                  1700                 1705                 1710  
 Arg Arg Glu Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
                  1715                 1720                 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
                  1730                 1735                 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
                  1745                 1750                 1755                 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
                  1765                 1770                 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
                  1780                 1785                 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
                  1795                 1800                 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
                  1810                 1815                 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
                  1825                 1830                 1835                 1840  
 Asp Leu Gly Asn Lys Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
                  1845                 1850                 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
                  1860                 1865                 1870

Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
 1875 1880 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
 1890 1895 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
 1905 1910 1915 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
 1925 1930 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
 1940 1945 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
 1955 1960 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
 1970 1975 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
 1985 1990 1995 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
 2035 2040 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
 2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
 2100 2105 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
 2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
 2130 2135 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
 2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
 2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
 2195 2200 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
 2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
 2245 2250 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
 2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
 2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
 2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
 2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
 2340 2345 2350

Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
                  2355                 2360                 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
                  2370                 2375                 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
                  2385                 2390                 2395                 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
                  2405                 2410                 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
                  2420                 2425                 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
                  2435                 2440                 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
                  2450                 2455                 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
                  2465                 2470                 2475                 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
                  2485                 2490                 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
                  2500                 2505                 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
                  2515                 2520                 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Ile Val Leu Asn Leu  
                  2530                 2535                 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
                  2545                 2550                 2555                 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
                  2565                 2570                 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
                  2580                 2585                 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
                  2595                 2600                 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
                  2610                 2615                 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
                  2625                 2630                 2635                 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
                  2645                 2650                 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
                  2660                 2665                 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
                  2675                 2680                 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
                  2690                 2695                 2700  
 Asn Pro Gln Gln Pro Ala  
                  2705                 2710

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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

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Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
     20                       25                       30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
     35                       40                       45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
     50                       55                       60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
     65                       70                       75                       80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
     85                       90                       95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
     100                       105                       110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
     115                       120                       125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
     130                       135                       140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
     145                       150                       155                       160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
     165                       170                       175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
     180                       185                       190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
     195                       200                       205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
     210                       215                       220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
     225                       230                       235                       240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
     245                       250                       255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
     260                       265                       270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
     275                       280                       285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
     290                       295                       300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
     305                       310                       315                       320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
     325                       330                       335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
     340                       345                       350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
     355                       360                       365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Asp Ser Leu Val Pro Arg  
     370                       375                       380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
     385                       390                       395                       400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
     405                       410                       415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
     420                       425                       430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
     435                       440                       445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
     450                       455                       460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
     465                       470                       475                       480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
     485                       490                       495

Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
       500                     505                     510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
       515                     520                     525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Glu Leu Gly Asp Gln  
       530                     535                     540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
       545                     550                     555                     560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
       565                     570                     575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
       580                     585                     590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
       595                     600                     605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
       610                     615                     620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
       625                     630                     635                     640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
       645                     650                     655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
       660                     665                     670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
       675                     680                     685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
       690                     695                     700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
       705                     710                     715                     720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
       725                     730                     735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
       740                     745                     750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
       755                     760                     765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
       770                     775                     780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
       785                     790                     795                     800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
       805                     810                     815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
       820                     825                     830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
       835                     840                     845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
       850                     855                     860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
       865                     870                     875                     880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
       885                     890                     895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
       900                     905                     910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
       915                     920                     925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
       930                     935                     940                     960  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
       945                     950                     955  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
       965                     970                     975

Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
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 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
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 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455

Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
           1460                         1465                         1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
           1475                         1480                         1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
           1490                         1495                         1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
           1505                         1510                         1515                         1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
           1525                         1530                         1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
           1540                         1545                         1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
           1555                         1560                         1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
           1570                         1575                         1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
           1585                         1590                         1595                         1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
           1605                         1610                         1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
           1620                         1625                         1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
           1635                         1640                         1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
           1650                         1655                         1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
           1665                         1670                         1675                         1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
           1685                         1690                         1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
           1700                         1705                         1710  
 Ser Thr Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
           1715                         1720                         1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
           1730                         1735                         1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Glu Leu Thr Ser Phe Gly  
           1745                         1750                         1755                         1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
           1765                         1770                         1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
           1780                         1785                         1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
           1795                         1800                         1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
           1810                         1815                         1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Asn Thr Thr Ile Gln His  
           1825                         1830                         1835                         1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
           1845                         1850                         1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
           1860                         1865                         1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
           1875                         1880                         1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
           1890                         1895                         1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
           1905                         1910                         1915                         1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
           1925                         1930                         1935

Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
                  1940                 1945                 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
                  1955                 1960                 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
                  1970                 1975                 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
                  1985                 1990                 1995                 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
                  2005                 2010                 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
                  2020                 2025                 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
                  2035                 2040                 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
                  2050                 2055                 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
                  2065                 2070                 2075                 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
                  2085                 2090                 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
                  2100                 2105                 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
                  2115                 2120                 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
                  2130                 2135                 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
                  2145                 2150                 2155                 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
                  2165                 2170                 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
                  2180                 2185                 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
                  2195                 2200                 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
                  2210                 2215                 2220  
 Arg Ile Tyr Tyr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
                  2225                 2230                 2235                 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
                  2245                 2250                 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
                  2260                 2265                 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
                  2275                 2280                 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
                  2290                 2295                 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
                  2305                 2310                 2315                 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
                  2325                 2330                 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
                  2340                 2345                 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
                  2355                 2360                 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
                  2370                 2375                 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
                  2385                 2390                 2395                 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu Leu  
                  2405                 2410                 2415

Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
 2725 2730 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
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<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

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Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
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Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
20 25 30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
35 40 45

Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525

Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005

Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
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 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
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 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
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 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
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 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
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 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
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 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
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 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485

Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
 1685 1690 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
 1700 1705 1710  
 Arg Arg Glu Asp Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
 1715 1720 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
 1730 1735 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
 1745 1750 1755 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
 1765 1770 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
 1780 1785 1790  
 Glu Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
 1795 1800 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
 1810 1815 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
 1825 1830 1835 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
 1845 1850 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
 1860 1865 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
 1875 1880 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
 1890 1895 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
 1905 1910 1915 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
 1925 1930 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
 1940 1945 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
 1955 1960 1965

Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
 1970 1975 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
 1985 1990 1995 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
 2035 2040 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
 2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
 2100 2105 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
 2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
 2130 2135 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
 2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
 2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
 2195 2200 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
 2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
 2245 2250 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
 2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
 2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
 2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
 2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
 2340 2345 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
 2355 2360 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
 2370 2375 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
 2385 2390 2395 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
 2405 2410 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
 2420 2425 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
 2435 2440 2445

Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
 2450 2455 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
 2465 2470 2475 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
 2485 2490 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
 2500 2505 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
 2515 2520 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Val Leu Asn Leu  
 2530 2535 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
 2545 2550 2555 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
 2565 2570 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
 2580 2585 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
 2595 2600 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
 2610 2615 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
 2625 2630 2635 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
 2645 2650 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
 2660 2665 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
 2675 2680 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
 2690 2695 2700  
 Asn Pro Gln Gln Pro Ala  
 2705 2710

&lt;210&gt; 8

&lt;211&gt; 2749

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 8

Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
 1 5 10 15  
 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110

Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590

Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070

Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
 1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550

Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
                   1555                  1560                  1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
                   1570                  1575                  1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
                   1585                  1590                  1595                  1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
                   1605                  1610                  1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
                   1620                  1625                  1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
                   1635                  1640                  1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
                   1650                  1655                  1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
                   1665                  1670                  1675                  1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
                   1685                  1690                  1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
                   1700                  1705                  1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln, Leu Glu Asp  
                   1715                  1720                  1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
                   1730                  1735                  1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Asp Leu Thr Ser Phe Gly  
                   1745                  1750                  1755                  1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
                   1765                  1770                  1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
                   1780                  1785                  1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
                   1795                  1800                  1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
                   1810                  1815                  1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Gly Asn Thr Thr Ile Gln His  
                   1825                  1830                  1835                  1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
                   1845                  1850                  1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
                   1860                  1865                  1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
                   1875                  1880                  1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
                   1890                  1895                  1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
                   1905                  1910                  1915                  1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
                   1925                  1930                  1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
                   1940                  1945                  1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
                   1955                  1960                  1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
                   1970                  1975                  1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
                   1985                  1990                  1995                  2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
                   2005                  2010                  2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
                   2020                  2025                  2030

Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
 2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
 2050 2055 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
 2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
 2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
 2115 2120 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
 2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
 2165 2170 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
 2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
 2195 2200 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
 2210 2215 2220  
 Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510

Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
 2725 2730 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
 2740 2745

<210> 9  
 <211> 2710  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 9  
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 1 5 10 15  
 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140

Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620

Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100

Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
 1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580

Ala Arg Arg Asp Glu Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
 1685 1690 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
 1700 1705 1710  
 Arg Arg Glu Glu Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
 1715 1720 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
 1730 1735 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
 1745 1750 1755 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
 1765 1770 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
 1780 1785 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
 1795 1800 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
 1810 1815 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
 1825 1830 1835 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
 1845 1850 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
 1860 1865 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
 1875 1880 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
 1890 1895 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
 1905 1910 1915 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
 1925 1930 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
 1940 1945 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
 1955 1960 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
 1970 1975 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
 1985 1990 1995 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
 2035 2040 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060

Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
     2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
     2100 2105 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
     2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
     2130 2135 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
     2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
     2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
     2195 2200 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
     2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
     2245 2250 2255  
 Phe Lys Gly Val Arg Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
     2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
     2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
     2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
     2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
     2340 2345 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
     2355 2360 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
     2370 2375 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
 2385 2390 2395 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
     2405 2410 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
     2420 2425 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
     2435 2440 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
     2450 2455 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
 2465 2470 2475 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
     2485 2490 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
     2500 2505 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
     2515 2520 2525  
 Tyr Asp Leu Leu Phe Phe Phe Met Val Ile Ile Ile Val Leu Asn Leu  
     2530 2535 2540

Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
 2545 2550 2555 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
 2565 2570 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
 2580 2585 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
 2595 2600 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
 2610 2615 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
 2625 2630 2635 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
 2645 2650 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
 2660 2665 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
 2675 2680 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
 2690 2695 2700  
 Asn Pro Gln Gln Pro Ala  
 2705 2710

<210> 10  
<211> 2749  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

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Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
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Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
20 25 30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
35 40 45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
50 55 60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
65 70 75 80  
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
85 90 95  
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
100 105 110  
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
115 120 125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
130 135 140  
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
145 150 155 160  
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
165 170 175  
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
180 185 190  
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
195 200 205

Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685

Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
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 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
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 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
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 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
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 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
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 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
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 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
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 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
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 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
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 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165

Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
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 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
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 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
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 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
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 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
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 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
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 1445 1450 1455  
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 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
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 1490 1495 1500  
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 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
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 Ala Arg Arg Asp Glu Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
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 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
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 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
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 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
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 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
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 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Glu Leu Thr Ser Phe Gly  
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 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
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 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
 1795 1800 1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
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 Leu Leu Ala Ile Ala Leu Leu Glu Gly Asn Thr Thr Ile Gln His  
 1825 1830 1835 1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
 1845 1850 1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
 1860 1865 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Asp Asp  
 1875 1880 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
 1890 1895 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
 1905 1910 1915 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
 1925 1930 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
 1940 1945 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
 1955 1960 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
 1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
 2005 2010 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
 2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
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 2050 2055 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
 2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
 2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
 2115 2120 2125

Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
 2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
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 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
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 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
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 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
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 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
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 Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
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 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
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 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
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 Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Phe Met Val  
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 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605

Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
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 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
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 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
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 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

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 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
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 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240

Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
           245                     250                     255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
           260                     265                     270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
           275                     280                     285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
           290                     295                     300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
           305                     310                     315                     320  
 Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
           325                     330                     335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
           340                     345                     350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
           355                     360                     365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
           370                     375                     380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
           385                     390                     395                     400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
           405                     410                     415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
           420                     425                     430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
           435                     440                     445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
           450                     455                     460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
           465                     470                     475                     480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
           485                     490                     495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
           500                     505                     510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
           515                     520                     525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
           530                     535                     540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
           545                     550                     555                     560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
           565                     570                     575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
           580                     585                     590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
           595                     600                     605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
           610                     615                     620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
           625                     630                     635                     640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
           645                     650                     655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
           660                     665                     670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
           675                     680                     685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
           690                     695                     700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
           705                     710                     715                     720

Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
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 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
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 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
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 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
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 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
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 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
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 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
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 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
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 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
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 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
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 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
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 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
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 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200

Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
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 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
                  1220                 1225                 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
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 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
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 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
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 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
                  1285                 1290                 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
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 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
                  1315                 1320                 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
                  1330                 1335                 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
                  1345                 1350                 1355                 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
                  1365                 1370                 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
                  1380                 1385                 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
                  1395                 1400                 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
                  1410                 1415                 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
                  1425                 1430                 1435                 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
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 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
                  1460                 1465                 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
                  1475                 1480                 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
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 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
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 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
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 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
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 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
                  1555                 1560                 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
                  1570                 1575                 1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
                  1585                 1590                 1595                 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
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 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
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 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
                  1635                 1640                 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
                  1650                 1655                 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
                  1665                 1670                 1675                 1680

Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
                  1685                 1690                 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
                  1700                 1705                 1710  
 Arg Arg Glu Asp Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
                  1715                 1720                 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
                  1730                 1735                 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
                  1745                 1750                 1755                 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
                  1765                 1770                 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
                  1780                 1785                 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
                  1795                 1800                 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
                  1810                 1815                 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
                  1825                 1830                 1835                 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
                  1845                 1850                 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
                  1860                 1865                 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
                  1875                 1880                 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
                  1890                 1895                 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
                  1905                 1910                 1915                 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
                  1925                 1930                 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
                  1940                 1945                 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
                  1955                 1960                 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Leu Gly Leu Tyr  
                  1970                 1975                 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
                  1985                 1990                 1995                 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
                  2005                 2010                 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
                  2020                 2025                 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
                  2035                 2040                 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
                  2050                 2055                 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
                  2065                 2070                 2075                 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
                  2085                 2090                 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
                  2100                 2105                 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
                  2115                 2120                 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
                  2130                 2135                 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
                  2145                 2150                 2155                 2160

Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
                  2165                 2170                 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
                  2180                 2185                 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
                  2195                 2200                 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
                  2210                 2215                 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
                  2225                 2230                 2235                 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
                  2245                 2250                 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
                  2260                 2265                 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
                  2275                 2280                 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
                  2290                 2295                 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
                  2305                 2310                 2315                 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
                  2325                 2330                 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
                  2340                 2345                 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
                  2355                 2360                 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
                  2370                 2375                 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
                  2385                 2390                 2395                 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
                  2405                 2410                 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
                  2420                 2425                 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
                  2435                 2440                 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
                  2450                 2455                 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
                  2465                 2470                 2475                 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
                  2485                 2490                 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
                  2500                 2505                 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
                  2515                 2520                 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Ile Val Leu Asn Leu  
                  2530                 2535                 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
                  2545                 2550                 2555                 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
                  2565                 2570                 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
                  2580                 2585                 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
                  2595                 2600                 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
                  2610                 2615                 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
                  2625                 2630                 2635                 2640

Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
                  2645                 2650                 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
                  2660                 2665                 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
                  2675                 2680                 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
                  2690                 2695                 2700  
 Asn Pro Gln Gln Pro Ala  
                  2705                 2710

<210> 12  
 <211> 2749  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

<400> 12

Met	Ser	Asp	Lys	Met	Ser	Ser	Phe	Leu	His	Ile	Gly	Asp	Ile	Cys	Ser
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Leu	Tyr	Ala	Glu	Gly	Ser	Thr	Asn	Gly	Phe	Ile	Ser	Thr	Leu	Gly	Leu
					20				25				30		
Val	Asp	Asp	Arg	Cys	Val	Val	Gln	Pro	Glu	Ala	Gly	Asp	Leu	Asn	Asn
					35			40				45			
Pro	Pro	Lys	Lys	Phe	Arg	Asp	Cys	Leu	Phe	Lys	Leu	Cys	Pro	Met	Asn
		50					55				60				
Arg	Tyr	Ser	Ala	Gln	Lys	Gln	Phe	Trp	Lys	Ala	Ala	Lys	Pro	Gly	Ala
					65		70			75			80		
Asn	Ser	Thr	Thr	Asp	Ala	Val	Leu	Leu	Asn	Lys	Leu	His	His	Ala	Ala
						85			90				95		
Asp	Leu	Glu	Lys	Lys	Gln	Asn	Glu	Thr	Glu	Asn	Arg	Lys	Leu	Gly	
						100		105				110			
Thr	Val	Ile	Gln	Tyr	Gly	Asn	Val	Ile	Gln	Leu	Leu	His	Leu	Lys	Ser
						115		120				125			
Asn	Lys	Tyr	Leu	Thr	Val	Asn	Lys	Arg	Leu	Pro	Ala	Leu	Glu	Lys	
						130		135				140			
Asn	Ala	Met	Arg	Val	Thr	Leu	Asp	Glu	Ala	Gly	Asn	Glu	Gly	Ser	Trp
						145		150			155				160
Phe	Tyr	Ile	Gln	Pro	Phe	Tyr	Lys	Leu	Arg	Ser	Ile	Gly	Asp	Ser	Val
						165			170				175		
Val	Ile	Gly	Asp	Lys	Val	Val	Leu	Asn	Pro	Val	Asn	Ala	Gly	Gln	Pro
						180			185				190		
Leu	His	Ala	Ser	Ser	His	Gln	Leu	Val	Asp	Asn	Pro	Gly	Cys	Asn	Glu
						195		200				205			
Val	Asn	Ser	Val	Asn	Cys	Asn	Thr	Ser	Trp	Lys	Ile	Val	Leu	Phe	Met
						210		215				220			
Lys	Trp	Ser	Asp	Asn	Lys	Asp	Asp	Ile	Leu	Lys	Gly	Gly	Asp	Val	Val
						225		230			235				240
Arg	Leu	Phe	His	Ala	Glu	Gln	Glu	Lys	Phe	Leu	Thr	Cys	Asp	Glu	His
							245			250			255		
Arg	Lys	Lys	Gln	His	Val	Phe	Leu	Arg	Thr	Thr	Gly	Arg	Gln	Ser	Ala
						260		265				270			
Thr	Ser	Ala	Thr	Ser	Ser	Lys	Ala	Leu	Trp	Glu	Val	Glu	Val	Val	Gln
						275		280				285			
His	Asp	Pro	Cys	Arg	Gly	Gly	Ala	Gly	Tyr	Trp	Asn	Ser	Leu	Phe	Arg
						290		295				300			

Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780

Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
   805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
   820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
   835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
   850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Ala Ile Leu Asp  
   885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
   900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
   915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
   930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
   965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
   980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
   995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
   1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
   1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
   1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
   1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
   1090 1095 1100  
 Thr Ser Gln Asp Val Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
   1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
   1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
   1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
   1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
   1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
   1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
   1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
   1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
   1250 1255 1260

Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
     1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
     1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
     1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
     1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
     1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
     1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
     1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
     1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
     1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
     1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
     1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
     1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
     1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
     1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
     1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
     1570 1575 1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
     1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
     1620 1625 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
     1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
     1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
     1685 1690 1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
     1700 1705 1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
     1715 1720 1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
     1730 1735 1740

Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Asp Leu Thr Ser Phe Gly  
 1745 1750 1755 1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
     1765 1770 1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
     1780 1785 1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
     1795 1800 1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
     1810 1815 1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Gly Asn Thr Thr Ile Gln His  
 1825 1830 1835 1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
     1845 1850 1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
     1860 1865 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
     1875 1880 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
     1890 1895 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
 1905 1910 1915 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
     1925 1930 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
     1940 1945 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
     1955 1960 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
     1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
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 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
     2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
     2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
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 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
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 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
     2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
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 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
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 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
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 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
     2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
     2195 2200 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
     2210 2215 2220

Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700

Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp			
2705	2710	2715	2720
Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly			
2725	2730	2735	
His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala			
2740	2745		

<210> 13  
<211> 2710  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 13			
Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser			
1	5	10	15
Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu			
20	25	30	
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn			
35	40	45	
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn			
50	55	60	
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala			
65	70	75	80
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala			
85	90	95	
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly			
100	105	110	
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser			
115	120	125	
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys			
130	135	140	
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp			
145	150	155	160
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val			
165	170	175	
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro			
180	185	190	
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu			
195	200	205	
Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met			
210	215	220	
Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val			
225	230	235	240
Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His			
245	250	255	
Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala			
260	265	270	
Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln			
275	280	285	
His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg			
290	295	300	
Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro			
305	310	315	320
Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp			
325	330	335	

Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
           340                         345                         350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
           355                         360                         365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
           370                         375                         380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
           385                         390                         395                         400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
           405                         410                         415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
           420                         425                         430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
           435                         440                         445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
           450                         455                         460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
           465                         470                         475                         480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
           485                         490                         495  
 Val Val Phe Ser Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
           500                         505                         510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
           515                         520                         525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
           530                         535                         540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
           545                         550                         555                         560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
           565                         570                         575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
           580                         585                         590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
           595                         600                         605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
           610                         615                         620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
           625                         630                         635                         640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
           645                         650                         655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
           660                         665                         670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
           675                         680                         685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
           690                         695                         700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
           705                         710                         715                         720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
           725                         730                         735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
           740                         745                         750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
           755                         760                         765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
           770                         775                         780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
           785                         790                         795                         800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
           805                         810                         815

Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
       820                  825                  830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
       835                  840                  845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
       850                  855                  860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
       865                  870                  875                  880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
       885                  890                  895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
       900                  905                  910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
       915                  920                  925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
       930                  935                  940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
       945                  950                  955                  960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
       965                  970                  975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
       980                  985                  990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
       995                  1000                1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
   1010                  1015                1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
   1025                  1030                1035                1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
       1045                  1050                1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
       1060                  1065                1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
       1075                  1080                1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
       1090                  1095                1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
       1105                  1110                1115                1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
       1125                  1130                1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
       1140                  1145                1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
       1155                  1160                1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
       1170                  1175                1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
       1185                  1190                1195                1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
       1205                  1210                1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
       1220                  1225                1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
       1235                  1240                1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
       1250                  1255                1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
       1265                  1270                1275                1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
       1285                  1290                1295

His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
           1300                  1305                  1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
           1315                  1320                  1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
           1330                  1335                  1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
           1345                  1350                  1355                  1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
           1365                  1370                  1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
           1380                  1385                  1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
           1395                  1400                  1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
           1410                  1415                  1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
           1425                  1430                  1435                  1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
           1445                  1450                  1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
           1460                  1465                  1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
           1475                  1480                  1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
           1490                  1495                  1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
           1505                  1510                  1515                  1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
           1525                  1530                  1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
           1540                  1545                  1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
           1555                  1560                  1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
           1570                  1575                  1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
           1585                  1590                  1595                  1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
           1605                  1610                  1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
           1620                  1625                  1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
           1635                  1640                  1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
           1650                  1655                  1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
           1665                  1670                  1675                  1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
           1685                  1690                  1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
           1700                  1705                  1710  
 Arg Arg Glu Glu Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
           1715                  1720                  1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
           1730                  1735                  1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
           1745                  1750                  1755                  1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
           1765                  1770                  1775

Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
                  1780                 1785                 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
                  1795                 1800                 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
                  1810                 1815                 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
                  1825                 1830                 1835                 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
                  1845                 1850                 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
                  1860                 1865                 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
                  1875                 1880                 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
                  1890                 1895                 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
                  1905                 1910                 1915                 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
                  1925                 1930                 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
                  1940                 1945                 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
                  1955                 1960                 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Leu Gly Leu Tyr  
                  1970                 1975                 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
                  1985                 1990                 1995                 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
                  2005                 2010                 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
                  2020                 2025                 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
                  2035                 2040                 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
                  2050                 2055                 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
                  2065                 2070                 2075                 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
                  2085                 2090                 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
                  2100                 2105                 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
                  2115                 2120                 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
                  2130                 2135                 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
                  2145                 2150                 2155                 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
                  2165                 2170                 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
                  2180                 2185                 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
                  2195                 2200                 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
                  2210                 2215                 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
                  2225                 2230                 2235                 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
                  2245                 2250                 2255

Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
                  2260                 2265                 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
                  2275                 2280                 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
                  2290                 2295                 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
                  2305                 2310                 2315                 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
                  2325                 2330                 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
                  2340                 2345                 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
                  2355                 2360                 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
                  2370                 2375                 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
                  2385                 2390                 2395                 2400  
 Ile Ile Leu Thr Ala Ala Leu Leu Ile Leu Val Tyr Leu Phe Ser  
                  2405                 2410                 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
                  2420                 2425                 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
                  2435                 2440                 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
                  2450                 2455                 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
                  2465                 2470                 2475                 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
                  2485                 2490                 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
                  2500                 2505                 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
                  2515                 2520                 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Val Leu Asn Leu  
                  2530                 2535                 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
                  2545                 2550                 2555                 2560  
 Gln Lys Lys Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
                  2565                 2570                 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
                  2580                 2585                 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
                  2595                 2600                 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
                  2610                 2615                 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
                  2625                 2630                 2635                 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
                  2645                 2650                 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
                  2660                 2665                 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
                  2675                 2680                 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
                  2690                 2695                 2700  
 Asn Pro Gln Gln Pro Ala  
                  2705                 2710

<211> 2749  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 14  
Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
1               5               10               15  
Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
20               25               30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
35               40               45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
50               55               60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
65               70               75               80  
Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
85               90               95  
Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
100              105              110  
Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
115              120              125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
130              135              140  
Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
145              150              155              160  
Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
165              170              175  
Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
180              185              190  
Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
195              200              205  
Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
210              215              220  
Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
225              230              235              240  
Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
245              250              255  
Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
260              265              270  
Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
275              280              285  
His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
290              295              300  
Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
305              310              315              320  
Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
325              330              335  
Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
340              345              350  
Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
355              360              365  
Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
370              375              380  
Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
385              390              395              400  
Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
405              410              415

Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
         420                         425                         430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
         435                         440                         445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
         450                         455                         460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
         465                         470                         475                         480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
         485                         490                         495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
         500                         505                         510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
         515                         520                         525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
         530                         535                         540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
         545                         550                         555                         560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
         565                         570                         575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
         580                         585                         590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
         595                         600                         605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
         610                         615                         620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
         625                         630                         635                         640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
         645                         650                         655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
         660                         665                         670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
         675                         680                         685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
         690                         695                         700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
         705                         710                         715                         720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
         725                         730                         735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
         740                         745                         750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
         755                         760                         765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
         770                         775                         780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
         785                         790                         795                         800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
         805                         810                         815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
         820                         825                         830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
         835                         840                         845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
         850                         855                         860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
         865                         870                         875                         880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
         885                         890                         895

Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
                  900                 905                 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
                  915                 920                 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
                  930                 935                 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
                  945                 950                 955                 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
                  965                 970                 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
                  980                 985                 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
                  995                 1000                 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
                  1010                 1015                 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
                  1025                 1030                 1035                 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
                  1045                 1050                 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
                  1060                 1065                 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
                  1075                 1080                 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
                  1090                 1095                 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
                  1105                 1110                 1115                 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
                  1125                 1130                 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
                  1140                 1145                 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
                  1155                 1160                 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
                  1170                 1175                 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
                  1185                 1190                 1195                 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
                  1205                 1210                 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
                  1220                 1225                 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
                  1235                 1240                 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
                  1250                 1255                 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
                  1265                 1270                 1275                 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
                  1285                 1290                 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
                  1300                 1305                 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
                  1315                 1320                 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
                  1330                 1335                 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
                  1345                 1350                 1355                 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
                  1365                 1370                 1375

His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
           1380               1385               1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
           1395               1400               1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
           1410               1415               1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
           1425               1430               1435               1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
           1445               1450               1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
           1460               1465               1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
           1475               1480               1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
           1490               1495               1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
           1505               1510               1515               1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
           1525               1530               1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
           1540               1545               1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
           1555               1560               1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
           1570               1575               1580  
 Ala Arg Arg Asp Asp Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
           1585               1590               1595               1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
           1605               1610               1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
           1620               1625               1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
           1635               1640               1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
           1650               1655               1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
           1665               1670               1675               1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
           1685               1690               1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
           1700               1705               1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
           1715               1720               1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
           1730               1735               1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Glu Leu Thr Ser Phe Gly  
           1745               1750               1755               1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
           1765               1770               1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
           1780               1785               1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
           1795               1800               1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
           1810               1815               1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Gly Asn Thr Thr Ile Gln His  
           1825               1830               1835               1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
           1845               1850               1855

Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
                  1860                 1865                 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
                  1875                 1880                 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
                  1890                 1895                 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
                  1905                 1910                 1915                 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
                  1925                 1930                 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
                  1940                 1945                 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
                  1955                 1960                 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
                  1970                 1975                 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
                  1985                 1990                 1995                 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
                  2005                 2010                 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
                  2020                 2025                 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
                  2035                 2040                 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
                  2050                 2055                 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
                  2065                 2070                 2075                 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
                  2085                 2090                 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
                  2100                 2105                 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
                  2115                 2120                 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
                  2130                 2135                 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
                  2145                 2150                 2155                 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
                  2165                 2170                 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
                  2180                 2185                 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
                  2195                 2200                 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
                  2210                 2215                 2220  
 Arg Ile Tyr Tyr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
                  2225                 2230                 2235                 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
                  2245                 2250                 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
                  2260                 2265                 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
                  2275                 2280                 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
                  2290                 2295                 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
                  2305                 2310                 2315                 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
                  2325                 2330                 2335

Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
                  2340                 2345                 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
                  2355                 2360                 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
                  2370                 2375                 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
                  2385                 2390                 2395                 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu Leu  
                  2405                 2410                 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
                  2420                 2425                 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
                  2435                 2440                 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
                  2450                 2455                 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
                  2465                 2470                 2475                 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
                  2485                 2490                 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
                  2500                 2505                 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
                  2515                 2520                 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
                  2530                 2535                 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
                  2545                 2550                 2555                 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Met Val  
                  2565                 2570                 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
                  2580                 2585                 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
                  2595                 2600                 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
                  2610                 2615                 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
                  2625                 2630                 2635                 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
                  2645                 2650                 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
                  2660                 2665                 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
                  2675                 2680                 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
                  2690                 2695                 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
                  2705                 2710                 2715                 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
                  2725                 2730                 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
                  2740                 2745

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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =

## synthetic construct

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 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460

Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
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 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
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 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
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 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
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 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
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 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
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 2005 2010 2015  
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 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
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 2340 2345 2350  
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 2370 2375 2380

Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
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 2465 2470 2475 2480  
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 2580 2585 2590  
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 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
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 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
 synthetic construct

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 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45

Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
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 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
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 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
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Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
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 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
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 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
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 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
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 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
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 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
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 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
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 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
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 755 760 765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
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 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
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 1940 1945 1950  
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 1955 1960 1965

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 1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
 2005 2010 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
 2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
 2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
 2050 2055 2060  
 Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
 2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
 2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
 2115 2120 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
 2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
 2165 2170 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
 2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
 2195 2200 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
 2210 2215 2220  
 Arg Ile Tyr Tyr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445

Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
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 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
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 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540  
 Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
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 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
 2740 2745

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<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

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 1 5 10 15  
Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80

Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
                   85                  90                  95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
                   100              105              110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
                   115              120              125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
                   130              135              140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
                   145              150              155              160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
                   165              170              175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
                   180              185              190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
                   195              200              205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
                   210              215              220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
                   225              230              235              240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
                   245              250              255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
                   260              265              270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
                   275              280              285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
                   290              295              300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
                   305              310              315              320  
 Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
                   325              330              335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
                   340              345              350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
                   355              360              365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
                   370              375              380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
                   385              390              395              400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
                   405              410              415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
                   420              425              430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
                   435              440              445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
                   450              455              460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
                   465              470              475              480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
                   485              490              495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
                   500              505              510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
                   515              520              525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
                   530              535              540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
                   545              550              555              560

Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
                   565                  570                  575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
                   580                  585                  590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
                   595                  600                  605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
                   610                  615                  620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
                   625                  630                  635                  640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
                   645                  650                  655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
                   660                  665                  670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
                   675                  680                  685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
                   690                  695                  700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
                   705                  710                  715                  720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
                   725                  730                  735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
                   740                  745                  750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
                   755                  760                  765  
 Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
                   770                  775                  780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
                   785                  790                  795                  800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
                   805                  810                  815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
                   820                  825                  830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
                   835                  840                  845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
                   850                  855                  860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
                   865                  870                  875                  880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
                   885                  890                  895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
                   900                  905                  910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
                   915                  920                  925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
                   930                  935                  940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
                   945                  950                  955                  960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
                   965                  970                  975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
                   980                  985                  990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
                   995                  1000                  1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
                   1010                  1015                  1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
                   1025                  1030                  1035                  1040

Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
                  1045                 1050                 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
                  1060                 1065                 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
                  1075                 1080                 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
                  1090                 1095                 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
                  1105                 1110                 1115                 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
                  1125                 1130                 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
                  1140                 1145                 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
                  1155                 1160                 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
                  1170                 1175                 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
                  1185                 1190                 1195                 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
                  1205                 1210                 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
                  1220                 1225                 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
                  1235                 1240                 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
                  1250                 1255                 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
                  1265                 1270                 1275                 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
                  1285                 1290                 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
                  1300                 1305                 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
                  1315                 1320                 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
                  1330                 1335                 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
                  1345                 1350                 1355                 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
                  1365                 1370                 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
                  1380                 1385                 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
                  1395                 1400                 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
                  1410                 1415                 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
                  1425                 1430                 1435                 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
                  1445                 1450                 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
                  1460                 1465                 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
                  1475                 1480                 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
                  1490                 1495                 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
                  1505                 1510                 1515                 1520

His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
                  1525                 1530                 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
                  1540                 1545                 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
                  1555                 1560                 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
                  1570                 1575                 1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
                  1585                 1590                 1595                 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
                  1605                 1610                 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
                  1620                 1625                 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
                  1635                 1640                 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
                  1650                 1655                 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
                  1665                 1670                 1675                 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
                  1685                 1690                 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
                  1700                 1705                 1710  
 Arg Arg Glu Ser Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
                  1715                 1720                 1725  
 Gly Pro Ser Lys Pro Gly Gly Gly Gly Pro Gly Ser Gly Ser  
                  1730                 1735                 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
                  1745                 1750                 1755                 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
                  1765                 1770                 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
                  1780                 1785                 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
                  1795                 1800                 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
                  1810                 1815                 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
                  1825                 1830                 1835                 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
                  1845                 1850                 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
                  1860                 1865                 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
                  1875                 1880                 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
                  1890                 1895                 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
                  1905                 1910                 1915                 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
                  1925                 1930                 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
                  1940                 1945                 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
                  1955                 1960                 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
                  1970                 1975                 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
                  1985                 1990                 1995                 2000

Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
 2035 2040 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
 2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
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 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
 2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
 2130 2135 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
 2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
 2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
 2195 2200 2205  
 Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
 2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
 2245 2250 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
 2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
 2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
 2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
 2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
 2340 2345 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
 2355 2360 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Leu Phe Asp Leu Val Tyr Arg Glu  
 2370 2375 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
 2385 2390 2395 2400  
 Ile Ile Leu Thr Ala Ala Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser  
 2405 2410 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
 2420 2425 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
 2435 2440 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
 2450 2455 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
 2465 2470 2475 2480

Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
                  2485                 2490                 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
                  2500                 2505                 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
                  2515                 2520                 2525  
 Tyr Asp Leu Leu Phe Phe Met Val Ile Ile Val Leu Asn Leu  
                  2530                 2535                 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
                  2545                 2550                 2555                 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
                  2565                 2570                 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
                  2580                 2585                 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
                  2595                 2600                 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
                  2610                 2615                 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
                  2625                 2630                 2635                 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
                  2645                 2650                 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
                  2660                 2665                 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
                  2675                 2680                 2685  
 Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val  
                  2690                 2695                 2700  
 Asn Pro Gln Gln Pro Ala  
                  2705                 2710

<210> 18  
 <211> 2749  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:/note =  
       synthetic construct

<400> 18  
 Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
     1                 5                 10                 15  
 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
     20                 25                 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
     35                 40                 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
     50                 55                 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
     65                 70                 75                 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
     85                 90                 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
     100                105                 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
     115                120                 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
     130                135                 140

Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620

Asn	Arg	Glu	Pro	Arg	Phe	Leu	Asp	Tyr	Leu	Ser	Asp	Leu	Cys	Val	Ser
625		630							635						640
Met	Asn	Lys	Ser	Ile	Pro	Val	Thr	Gln	Glu	Leu	Ile	Cys	Lys	Ala	Val
		645						650						655	
Leu	Asn	Pro	Thr	Asn	Ala	Asp	Ile	Leu	Ile	Glu	Thr	Lys	Leu	Val	Leu
		660					665						670		
Ser	Arg	Phe	Glu	Phe	Glu	Gly	Val	Ser	Thr	Gly	Glu	Asn	Ala	Leu	Glu
		675			680					685					
Ala	Gly	Glu	Asp	Glu	Glu	Glu	Val	Trp	Leu	Phe	Trp	Arg	Asp	Ser	Asn
		690			695				700						
Lys	Glu	Ile	Arg	Ser	Lys	Ser	Val	Arg	Glu	Leu	Ala	Gln	Asp	Ala	Lys
		705			710			715					720		
Glu	Gly	Gln	Lys	Glu	Asp	Arg	Asp	Val	Leu	Ser	Tyr	Tyr	Arg	Tyr	Gln
			725					730			735				
Leu	Asn	Leu	Phe	Ala	Arg	Met	Cys	Leu	Asp	Arg	Gln	Tyr	Leu	Ala	Ile
			740				745					750			
Asn	Glu	Ile	Ser	Gly	Gln	Leu	Asp	Val	Asp	Leu	Ile	Leu	Arg	Cys	Met
			755			760				765					
Ser	Asp	Glu	Asn	Leu	Pro	Tyr	Asp	Leu	Arg	Ala	Ser	Phe	Cys	Arg	Leu
			770			775			780						
Met	Leu	His	Met	His	Val	Asp	Arg	Asp	Pro	Gln	Glu	Gln	Val	Thr	Pro
			785			790			795				800		
Val	Lys	Tyr	Ala	Arg	Leu	Trp	Ser	Glu	Ile	Pro	Ser	Glu	Ile	Ala	Ile
				805				810				815			
Asp	Asp	Tyr	Asp	Ser	Ser	Gly	Ala	Ser	Lys	Asp	Glu	Ile	Lys	Glu	Arg
			820				825			830					
Phe	Ala	Gln	Thr	Met	Glu	Phe	Val	Glu	Glu	Tyr	Leu	Arg	Asp	Val	Val
			835				840			845					
Cys	Gln	Arg	Phe	Pro	Phe	Ser	Asp	Lys	Glu	Lys	Asn	Lys	Leu	Thr	Phe
			850			855			860						
Glu	Val	Val	Asn	Leu	Ala	Arg	Asn	Leu	Ile	Tyr	Phe	Gly	Phe	Tyr	Asn
			865			870			875			880			
Phe	Ser	Asp	Leu	Leu	Arg	Leu	Thr	Lys	Ile	Leu	Leu	Ala	Ile	Leu	Asp
				885				890			895				
Cys	Val	His	Val	Thr	Thr	Ile	Phe	Pro	Ile	Ser	Lys	Met	Thr	Lys	Gly
			900			905			910						
Glu	Glu	Asn	Lys	Gly	Ser	Asn	Val	Met	Arg	Ser	Ile	His	Gly	Val	Gly
			915				920			925					
Glu	Leu	Met	Thr	Gln	Val	Val	Leu	Arg	Gly	Gly	Phe	Leu	Pro	Met	
			930			935			940						
Thr	Pro	Met	Ala	Ala	Ala	Pro	Glu	Gly	Asn	Val	Lys	Gln	Ala	Glu	Pro
			945			950			955				960		
Glu	Lys	Glu	Asp	Ile	Met	Val	Met	Asp	Thr	Lys	Leu	Lys	Ile	Ile	Glu
				965			970			975					
Ile	Leu	Gln	Phe	Ile	Leu	Asn	Val	Arg	Leu	Asp	Tyr	Arg	Ile	Ser	Cys
			980			985			990						
Leu	Leu	Cys	Ile	Phe	Lys	Arg	Glu	Phe	Asp	Glu	Ser	Asn	Ser	Gln	Ser
			995				1000			1005					
Ser	Glu	Thr	Ser	Ser	Gly	Asn	Ser	Ser	Gln	Glu	Gly	Pro	Ser	Asn	Val
			1010			1015			1020						
Pro	Gly	Ala	Leu	Asp	Phe	Glu	His	Ile	Glu	Glu	Gln	Ala	Glu	Gly	Ile
			1025			1030			1035				1040		
Phe	Gly	Gly	Ser	Glu	Glu	Asn	Thr	Pro	Leu	Asp	Leu	Asp	Asp	His	Gly
				1045			1050			1055					
Gly	Arg	Thr	Phe	Leu	Arg	Val	Leu	Leu	His	Leu	Thr	Met	His	Asp	Tyr
			1060			1065			1070						
Pro	Pro	Leu	Val	Ser	Gly	Ala	Leu	Gln	Leu	Leu	Phe	Arg	His	Phe	Ser
			1075			1080			1085						
Gln	Arg	Gln	Glu	Val	Leu	Gln	Ala	Phe	Lys	Gln	Val	Gln	Leu	Leu	Val
			1090			1095			1100						

Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
 1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245  
 Gln Gln Asn Gln Ala Leu Leu His Lys His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580

Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Gly Glu Lys Gln Ile Ser Ile  
 1685 1690 1695  
 Asp Glu Leu Glu Asn Ala Glu Leu Pro Gln Pro Pro Glu Ala Glu Asn  
 1700 1705 1710  
 Ser Thr Glu Glu Leu Glu Pro Ser Pro Pro Leu Arg Gln Leu Glu Asp  
 1715 1720 1725  
 His Lys Arg Gly Glu Ala Leu Arg Gln Ile Leu Val Asn Arg Tyr Tyr  
 1730 1735 1740  
 Gly Asn Ile Arg Pro Ser Gly Arg Arg Glu Ser Leu Thr Ser Phe Gly  
 1745 1750 1755 1760  
 Asn Gly Pro Leu Ser Pro Gly Gly Pro Ser Lys Pro Gly Gly Gly  
 1765 1770 1775  
 Gly Gly Pro Gly Ser Gly Ser Thr Ser Arg Gly Glu Met Ser Leu Ala  
 1780 1785 1790  
 Glu Val Gln Cys His Leu Asp Lys Glu Gly Ala Ser Asn Leu Val Ile  
 1795 1800 1805  
 Asp Leu Ile Met Asn Ala Ser Ser Asp Arg Val Phe His Glu Ser Ile  
 1810 1815 1820  
 Leu Leu Ala Ile Ala Leu Leu Glu Gly Asn Thr Thr Ile Gln His  
 1825 1830 1835 1840  
 Ser Phe Phe Cys Arg Leu Thr Glu Asp Lys Lys Ser Glu Lys Phe Phe  
 1845 1850 1855  
 Lys Val Phe Tyr Asp Arg Met Lys Val Ala Gln Gln Glu Ile Lys Ala  
 1860 1865 1870  
 Thr Val Thr Val Asn Thr Ser Asp Leu Gly Asn Lys Lys Lys Asp Asp  
 1875 1880 1885  
 Glu Val Asp Arg Asp Ala Pro Ser Arg Lys Lys Ala Lys Glu Pro Thr  
 1890 1895 1900  
 Thr Gln Ile Thr Glu Glu Val Arg Asp Gln Leu Leu Glu Ala Ser Ala  
 1905 1910 1915 1920  
 Ala Thr Arg Lys Ala Phe Thr Thr Phe Arg Arg Glu Ala Asp Pro Asp  
 1925 1930 1935  
 Asp His Tyr Gln Ser Gly Glu Gly Thr Gln Ala Thr Thr Asp Lys Ala  
 1940 1945 1950  
 Lys Asp Asp Leu Glu Met Ser Ala Val Ile Thr Ile Met Gln Pro Ile  
 1955 1960 1965  
 Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Asp Leu Gln  
 1970 1975 1980  
 Asn Phe Leu Arg Cys Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val Cys  
 1985 1990 1995 2000  
 Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly Gly  
 2005 2010 2015  
 Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu Ile  
 2020 2025 2030  
 Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys His  
 2035 2040 2045  
 Glu Asn Gln Asn Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp Ile  
 2050 2055 2060

Ile Thr Ala Leu Ile Leu Asn Asp Ile Asn Pro Leu Gly Lys Lys Arg  
 2065 2070 2075 2080  
 Met Asp Leu Val Leu Glu Leu Lys Asn Asn Ala Ser Lys Leu Leu  
 2085 2090 2095  
 Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile Leu  
 2100 2105 2110  
 Tyr Asn Met Arg Pro Lys Glu Leu Val Glu Val Ile Lys Lys Ala Tyr  
 2115 2120 2125  
 Met Gln Gly Glu Val Glu Phe Glu Asp Gly Glu Asn Gly Glu Asp Gly  
 2130 2135 2140  
 Ala Ala Ser Pro Arg Asn Val Gly His Asn Ile Tyr Ile Leu Ala His  
 2145 2150 2155 2160  
 Gln Leu Ala Arg His Asn Lys Glu Leu Gln Thr Met Leu Lys Pro Gly  
 2165 2170 2175  
 Gly Gln Val Asp Gly Asp Glu Ala Leu Glu Phe Tyr Ala Lys His Thr  
 2180 2185 2190  
 Ala Gln Ile Glu Ile Val Arg Leu Asp Arg Thr Met Glu Gln Ile Val  
 2195 2200 2205  
 Phe Pro Val Pro Ser Ile Cys Glu Phe Leu Thr Lys Glu Ser Lys Leu  
 2210 2215 2220  
 Arg Ile Tyr Tyr Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys Ile Asn  
 2225 2230 2235 2240  
 Asp Phe Phe Leu Arg Ser Glu Asp Leu Phe Asn Glu Met Asn Trp Gln  
 2245 2250 2255  
 Lys Lys Leu Arg Ala Gln Pro Val Leu Tyr Trp Cys Ala Arg Asn Met  
 2260 2265 2270  
 Ser Phe Trp Ser Ser Ile Ser Phe Asn Leu Ala Val Leu Met Asn Leu  
 2275 2280 2285  
 Leu Val Ala Phe Phe Tyr Pro Phe Lys Gly Val Arg Gly Gly Thr Leu  
 2290 2295 2300  
 Glu Pro His Trp Ser Gly Leu Leu Trp Thr Ala Met Leu Ile Ser Leu  
 2305 2310 2315 2320  
 Ala Ile Val Ile Ala Leu Pro Lys Pro His Gly Ile Arg Ala Leu Ile  
 2325 2330 2335  
 Ala Ser Thr Ile Leu Arg Leu Ile Phe Ser Val Gly Leu Gln Pro Thr  
 2340 2345 2350  
 Leu Phe Leu Leu Gly Ala Phe Asn Val Cys Asn Lys Ile Ile Phe Leu  
 2355 2360 2365  
 Met Ser Phe Val Gly Asn Cys Gly Thr Phe Thr Arg Gly Tyr Arg Ala  
 2370 2375 2380  
 Met Val Leu Asp Val Glu Phe Leu Tyr His Leu Leu Tyr Leu Leu Ile  
 2385 2390 2395 2400  
 Cys Ala Met Gly Leu Phe Val His Glu Phe Phe Tyr Ser Leu Leu  
 2405 2410 2415  
 Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val Ile Lys Ser  
 2420 2425 2430  
 Val Thr Arg Asn Gly Arg Pro Ile Ile Leu Thr Ala Ala Leu Ala Leu  
 2435 2440 2445  
 Ile Leu Val Tyr Leu Phe Ser Ile Val Gly Tyr Leu Phe Phe Lys Asp  
 2450 2455 2460  
 Asp Phe Ile Leu Glu Val Asp Arg Leu Pro Asn Glu Thr Ala Gly Pro  
 2465 2470 2475 2480  
 Glu Thr Gly Glu Ser Leu Ala Asn Asp Phe Leu Tyr Ser Asp Val Cys  
 2485 2490 2495  
 Arg Val Glu Thr Gly Glu Asn Cys Thr Ser Pro Ala Pro Lys Glu Glu  
 2500 2505 2510  
 Leu Leu Pro Val Glu Glu Thr Glu Gln Asp Lys Glu His Thr Cys Glu  
 2515 2520 2525  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Ser His Gly Leu Arg Ser  
 2530 2535 2540

Gly Gly Gly Val Gly Asp Val Leu Arg Lys Pro Ser Lys Glu Glu Pro  
 2545 2550 2555 2560  
 Leu Phe Ala Ala Arg Val Ile Tyr Asp Leu Leu Phe Phe Met Val  
 2565 2570 2575  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
 2580 2585 2590  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Glu Ile Leu Lys Thr  
 2595 2600 2605  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
 2610 2615 2620  
 Val Thr Phe Glu Glu His Ile Lys Glu Glu His Asn Met Trp His Tyr  
 2625 2630 2635 2640  
 Leu Cys Phe Ile Val Leu Val Lys Val Lys Asp Ser Thr Glu Tyr Thr  
 2645 2650 2655  
 Gly Pro Glu Ser Tyr Val Ala Glu Met Ile Arg Glu Arg Asn Leu Asp  
 2660 2665 2670  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Ser Asp Ser Glu  
 2675 2680 2685  
 Gly Glu Gln Asn Glu Leu Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
 2690 2695 2700  
 Met Lys Leu Val Thr Asn Leu Ser Gly Gln Leu Ser Glu Leu Lys Asp  
 2705 2710 2715 2720  
 Gln Met Thr Glu Gln Arg Lys Gln Lys Gln Arg Ile Gly Leu Leu Gly  
 2725 2730 2735  
 His Pro Pro His Met Asn Val Asn Pro Gln Gln Pro Ala  
 2740 2745

<210> 19  
<211> 2701  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:/note =  
synthetic construct

<400> 19  
Met Ser Asp Lys Met Ser Ser Phe Leu Tyr Ile Gly Asp Ile Val Ser  
 1 5 10 15  
Leu Tyr Ala Glu Gly Ser Val Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
Val Asp Asp Arg Cys Val Val His Pro Glu Ala Gly Asp Leu Thr Asn  
 35 40 45  
Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Val Cys Pro Met Asn  
 50 55 60  
Arg Tyr Ser Ala Gln Lys Gln Tyr Trp Lys Ala Lys Gln Ala Lys Gln  
 65 70 75 80  
Gly Asn His Thr Glu Ala Ala Leu Leu Lys Lys Leu Gln His Ala Ala  
 85 90 95  
Glu Leu Glu Gln Lys Gln Asn Glu Ser Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
Glu Ile Val Lys Tyr Ser Lys Val Ile Gln Leu Leu His Ile Lys Ser  
 115 120 125  
Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
Asn Ala Met Arg Val Ser Leu Asp Ala Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
Phe Tyr Ile His Pro Phe Trp Lys Leu Arg Ser Glu Gly Asp Asn Ile  
 165 170 175

Val Val Gly Asp Lys Val Val Leu Met Pro Val Asn Ala Gly Gln Pro  
                  180                 185                 190  
 Leu His Ala Ser Asn Val Glu Leu Leu Asp Asn Pro Gly Cys Lys Glu  
                  195                 200                 205  
 Val Asn Ala Val Asn Cys Asn Thr Ser Trp Lys Ile Thr Leu Phe Met  
                  210                 215                 220  
 Lys Phe Ser Ser Tyr Arg Glu Asp Val Leu Lys Gly Gly Asp Val Val  
                  225                 230                 235                 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Asp Tyr  
                  245                 250                 255  
 Glu Lys Lys Gln His Ile Phe Leu Arg Thr Thr Leu Arg Gln Ser Ala  
                  260                 265                 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Ile Glu Val Val His  
                  275                 280                 285  
 His Asp Pro Cys Arg Gly Gly Ala Gly Gln Trp Asn Ser Leu Phe Arg  
                  290                 295                 300  
 Phe Lys His Leu Ala Thr Gly Asn Tyr Leu Ala Ala Glu Leu Asn Pro  
                  305                 310                 315                 320  
 Asp Tyr Arg Asp Ala Gln Asn Glu Gly Lys Thr Val Arg Asp Gly Glu  
                  325                 330                 335  
 Leu Pro Thr Ser Lys Lys His Gln Ala Gly Glu Lys Ile Met Tyr  
                  340                 345                 350  
 Thr Leu Val Ser Val Pro His Gly Asn Asp Ile Ala Ser Leu Phe Glu  
                  355                 360                 365  
 Leu Asp Ala Thr Thr Leu Gln Arg Ala Asp Cys Leu Val Pro Arg Asn  
                  370                 375                 380  
 Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val Thr Ser  
                  385                 390                 395                 400  
 Thr Ser Ile Pro Ile Asp Thr Glu Glu Arg Pro Val Met Leu Lys  
                  405                 410                 415  
 Ile Gly Thr Cys Gln Thr Lys Glu Asp Lys Glu Ala Phe Ala Ile Val  
                  420                 425                 430  
 Cys Val Pro Leu Ser Glu Val Arg Asp Leu Asp Phe Ala Asn Asp Ala  
                  435                 440                 445  
 Asn Lys Val Leu Ala Thr Thr Val Lys Lys Leu Glu Asn Gly Ser Ile  
                  450                 455                 460  
 Thr Gln Asn Glu Arg Arg Phe Val Thr Lys Leu Leu Glu Asp Leu Ile  
                  465                 470                 475                 480  
 Phe Phe Val Ala Asp Val Thr Asn Asn Gly Gln Asp Val Leu Asp Val  
                  485                 490                 495  
 Val Ile Thr Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu Gln  
                  500                 505                 510  
 Asn Ile Leu Ala Gln Val Phe Gly Ile Leu Lys Ala Pro Phe Lys Glu  
                  515                 520                 525  
 Lys Ala Gly Glu Gly Ser Met Leu Arg Leu Glu Asp Leu Gly Asp Gln  
                  530                 535                 540  
 Arg Tyr Ala Pro Tyr Lys Tyr Val Leu Arg Leu Cys Tyr Arg Val Leu  
                  545                 550                 555                 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
                  565                 570                 575  
 Asn Phe Cys Val Met Gln Ser Gln Ile Gly Tyr Asp Ile Leu Ala Glu  
                  580                 585                 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
                  595                 600                 605  
 His Ile Thr Ala Lys Glu Ile Glu Thr Phe Val Ser Leu Leu Arg Arg  
                  610                 615                 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
                  625                 630                 635                 640  
 Asn Ser Thr Ala Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Phe Met  
                  645                 650                 655

Leu Ser Pro Gly Asn Ala Asp Ile Leu Ile Gln Thr Lys Leu Val Ser  
       660                 665                 670  
 Met Gln Val Glu Asn Pro Met Glu Ser Ser Ile Leu Pro Asp Asp Ile  
       675                 680                 685  
 Asp Asp Glu Glu Val Trp Leu Tyr Trp Ile Asp Ser Asn Lys Glu Pro  
       690                 695                 700  
 His Gly Lys Ala Ile Arg His Leu Ala Gln Glu Ala Arg Glu Gly Thr  
       705                 710                 715                 720  
 Lys Ala Asp Leu Glu Val Leu Thr Tyr Arg Tyr Gln Leu Asn Leu  
       725                 730                 735  
 Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile Asn Gln Ile  
       740                 745                 750  
 Ser Thr Gln Leu Ser Val Asp Leu Ile Leu Arg Cys Val Ser Asp Glu  
       755                 760                 765  
 Ser Leu Pro Phe Asp Leu Arg Ala Ser Phe Cys Arg Leu Met Leu His  
       770                 775                 780  
 Met His Val Asp Arg Asp Pro Gln Glu Ser Val Val Pro Val Arg Tyr  
       785                 790                 795                 800  
 Ala Arg Leu Trp Thr Glu Ile Pro Thr Lys Ile Thr Ile His Glu Tyr  
       805                 810                 815  
 Asp Ser Ile Thr Asp Ser Ser Arg Asn Asp Met Lys Arg Lys Phe Ala  
       820                 825                 830  
 Leu Thr Met Glu Phe Val Glu Glu Tyr Leu Lys Glu Val Val Asn Gln  
       835                 840                 845  
 Pro Phe Pro Phe Gly Asp Lys Glu Lys Asn Lys Leu Thr Phe Glu Val  
       850                 855                 860  
 Val His Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Ser Phe Ser  
       865                 870                 875                 880  
 Glu Leu Leu Arg Leu Thr Arg Thr Leu Leu Ala Ile Leu Asp Ile Val  
       885                 890                 895  
 Gln Ala Pro Met Ser Ser Tyr Phe Glu Arg Leu Ser Lys Phe Gln Asp  
       900                 905                 910  
 Gly Ser Asn Asn Val Met Arg Thr Ile His Gly Val Gly Glu Met Met  
       915                 920                 925  
 Thr Gln Met Val Leu Ser Arg Gly Ser Ile Phe Pro Val Ser Trp Pro  
       930                 935                 940  
 Asp Ala Gln Pro Ser Val His Pro Ser Lys Gln Ala Ser Pro Gly Glu  
       945                 950                 955                 960  
 Gln Glu Asp Val Thr Val Met Asp Thr Lys Leu Lys Val Ile Glu Ile  
       965                 970                 975  
 Leu Gln Phe Ile Leu Ser Val Arg Leu Asp Tyr Arg Ile Ser Tyr Met  
       980                 985                 990  
 Leu Ser Ile Tyr Lys Lys Glu Phe Gly Glu Asn Asp Gly Asn Gly Asp  
       995                 1000                1005  
 Pro Ser Ala Ser Gly Thr Pro Glu Thr Leu Leu Pro Ser Ala Leu Val  
       1010                1015                1020  
 Pro Asp Ile Asp Glu Ile Ala Ala Gln Ala Glu Thr Met Phe Ala Gly  
       1025                1030                1035                1040  
 Arg Lys Glu Lys Thr Pro Val Gln Leu Asp Asp Glu Gly Gly Arg Thr  
       1045                1050                1055  
 Phe Leu Arg Val Leu Ile His Leu Ile Met His Asp Tyr Ala Pro Leu  
       1060                1065                1070  
 Leu Ser Gly Ala Leu Gln Leu Leu Phe Lys His Phe Ser Gln Arg Ala  
       1075                1080                1085  
 Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val Ser Asn Gln  
       1090                1095                1100  
 Asp Val Asp Asn Tyr Lys Gln Ile Lys Ala Asp Leu Asp Gln Leu Arg  
       1105                1110                1115                1120  
 Leu Thr Val Glu Lys Ser Glu Leu Trp Val Glu Lys Ser Gly Ser Tyr  
       1125                1130                1135

Glu Asn Gly Asp Met Gly Glu Gly Gln Ala Lys Gly Gly Glu Glu Ala  
                  1140                 1145                 1150  
 Asn Glu Glu Ser Asn Leu Leu Ser Pro Val Gln Asp Gly Ala Lys Thr  
                  1155                 1160                 1165  
 Pro Gln Ile Asp Ser Asn Lys Gly Asn Asn Tyr Arg Ile Val Lys Glu  
                  1170                 1175                 1180  
 Ile Leu Ile Arg Leu Ser Lys Leu Cys Val Gln Asn Lys Lys Cys Arg  
                  1185                 1190                 1195                 1200  
 Asn Gln His Gln Arg Leu Leu Lys Asn Met Gly Ala His Ser Val Val  
                  1205                 1210                 1215  
 Leu Asp Leu Leu Gln Ile Pro Tyr Glu Lys Thr Asp Glu Lys Met Asn  
                  1220                 1225                 1230  
 Glu Val Met Asp Leu Ala His Thr Phe Leu Gln Asn Phe Cys Arg Gly  
                  1235                 1240                 1245  
 Asn Pro Gln Asn Gln Val Leu Leu His Lys His Leu Asn Leu Phe Leu  
                  1250                 1255                 1260  
 Thr Pro Gly Leu Leu Glu Ala Glu Thr Met Arg His Ile Phe Met Asn  
                  1265                 1270                 1275                 1280  
 Asn Tyr His Leu Cys Asn Glu Ile Ser Glu Arg Val Val Gln His Phe  
                  1285                 1290                 1295  
 Val His Cys Ile Glu Thr His Gly Arg His Val Glu Tyr Leu Arg Phe  
                  1300                 1305                 1310  
 Leu Gln Thr Ile Val Lys Ala Asp Gly Lys Tyr Val Lys Lys Cys Gln  
                  1315                 1320                 1325  
 Asp Met Val Met Thr Glu Leu Ile Asn Gly Gly Glu Asp Val Leu Ile  
                  1330                 1335                 1340  
 Phe Tyr Asn Asp Arg Ala Ser Phe Pro Ile Leu Leu Asn Met Met Cys  
                  1345                 1350                 1355                 1360  
 Ser Glu Arg Ala Arg Gly Asp Glu Ser Gly Pro Leu Ala Tyr His Ile  
                  1365                 1370                 1375  
 Thr Leu Val Glu Leu Leu Ala Ala Cys Thr Glu Gly Lys Asn Val Tyr  
                  1380                 1385                 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
                  1395                 1400                 1405  
 Val Val Thr His Asp Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Val  
                  1410                 1415                 1420  
 Asn Phe Val Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
                  1425                 1430                 1435                 1440  
 Ile Tyr Thr Ser Asn His Ile Trp Lys Leu Phe Glu Asn Phe Leu Val  
                  1445                 1450                 1455  
 Asp Met Ala Arg Val Cys Asn Thr Thr Asp Arg Lys His Ala Asp  
                  1460                 1465                 1470  
 Thr Phe Leu Glu Arg Cys Val Thr Glu Ser Val Met Asn Ile Val Ser  
                  1475                 1480                 1485  
 Gly Phe Phe Asn Ser Pro Phe Ser Asp Asn Ser Thr Ser Leu Gln Thr  
                  1490                 1495                 1500  
 His Gln Pro Val Phe Ile Gln Leu Leu Gln Ser Ala Phe Arg Ile Tyr  
                  1505                 1510                 1515                 1520  
 Asn Cys Thr Trp Pro Asn Pro Ala Gln Lys Ala Ser Val Glu Ser Cys  
                  1525                 1530                 1535  
 Ile Arg Ala Leu Ala Glu Val Ala Lys Asn Arg Gly Ile Ala Ile Pro  
                  1540                 1545                 1550  
 Val Asp Leu Asp Ser Gln Val Asn Thr Leu Phe Met Lys Asn His Ser  
                  1555                 1560                 1565  
 Ser Thr Val Gln Arg Ala Ala Met Gly Trp Arg Leu Ser Ala Arg Ser  
                  1570                 1575                 1580  
 Gly Pro Arg Phe Lys Glu Ala Leu Gly Gly Pro Ala Trp Asp Tyr Arg  
                  1585                 1590                 1595                 1600  
 Asn Ile Ile Glu Lys Leu Gln Asp Val Val Ala Ser Leu Glu Gln Gln  
                  1605                 1610                 1615

Phe Ser Pro Met Met Gln Ala Glu Phe Ser Val Leu Val Asp Val Leu  
                  1620                 1625                 1630  
 Tyr Ser Pro Glu Leu Leu Phe Pro Glu Gly Ser Asp Ala Arg Ile Arg  
                  1635                 1640                 1645  
 Cys Gly Ala Phe Met Ser Lys Leu Ile Asn His Thr Lys Lys Leu Met  
                  1650                 1655                 1660  
 Glu Lys Glu Glu Lys Leu Cys Ile Lys Ile Leu Gln Thr Leu Arg Glu  
                  1665                 1670                 1675                 1680  
 Met Leu Glu Lys Lys Asp Ser Phe Met Glu Glu Ser Ser Thr Leu Arg  
                  1685                 1690                 1695  
 Lys Ile Leu Leu Asn Arg Tyr Phe Lys Gly Asp His Ser Val Gly Val  
                  1700                 1705                 1710  
 Asn Gly Pro Leu Ser Gly Ala Tyr Ala Lys Thr Ala Gln Val Gly Gly  
                  1715                 1720                 1725  
 Gly Phe Thr Gly Gln Asp Ala Asp Lys Thr Gly Ile Ser Met Ser Asp  
                  1730                 1735                 1740  
 Ile Gln Cys Leu Leu Asp Lys Glu Gly Ala Ser Glu Leu Val Ile Asp  
                  1745                 1750                 1755                 1760  
 Val Ile Val Asn Thr Lys Asn Asp Arg Ile Phe Ser Glu Gly Ile Leu  
                  1765                 1770                 1775  
 Leu Gly Ile Ala Leu Leu Glu Gly Gly Asn Thr Gln Thr Gln Asn Ser  
                  1780                 1785                 1790  
 Phe Tyr Gln Gln Leu His Glu Gln Lys Lys Ser Glu Lys Phe Phe Lys  
                  1795                 1800                 1805  
 Val Leu Tyr Asp Arg Met Lys Ala Ala Gln Lys Glu Ile Arg Ser Thr  
                  1810                 1815                 1820  
 Val Thr Val Asn Thr Ile Asp Leu Gly Ser Lys Lys Arg Glu Glu Asp  
                  1825                 1830                 1835                 1840  
 Ser Asp Leu Met Ala Leu Gly Pro Arg Met Arg Val Arg Asp Ser Ser  
                  1845                 1850                 1855  
 Leu His Leu Lys Glu Gly Met Lys Gly Gln Leu Thr Glu Ala Ser Ser  
                  1860                 1865                 1870  
 Ala Thr Ser Lys Ala Tyr Cys Val Tyr Arg Arg Glu Met Asp Pro Asp  
                  1875                 1880                 1885  
 Ile Asp Thr Met Cys Pro Gly Gln Glu Ala Gly Ser Ala Glu Glu Lys  
                  1890                 1895                 1900  
 Ser Ala Glu Glu Val Thr Met Ser Pro Ala Ile Thr Ile Met Arg Pro  
                  1905                 1910                 1915                 1920  
 Ile Leu Arg Phe Leu Gln Leu Leu Cys Glu Asn His Asn Arg Glu Leu  
                  1925                 1930                 1935  
 Gln Asn Phe Leu Arg Asn Gln Asn Asn Lys Thr Asn Tyr Asn Leu Val  
                  1940                 1945                 1950  
 Cys Glu Thr Leu Gln Phe Leu Asp Cys Ile Cys Gly Ser Thr Thr Gly  
                  1955                 1960                 1965  
 Gly Leu Gly Leu Leu Gly Leu Tyr Ile Asn Glu Lys Asn Val Ala Leu  
                  1970                 1975                 1980  
 Val Asn Gln Thr Leu Glu Ser Leu Thr Glu Tyr Cys Gln Gly Pro Cys  
                  1985                 1990                 1995                 2000  
 His Glu Asn Gln Thr Cys Ile Ala Thr His Glu Ser Asn Gly Ile Asp  
                  2005                 2010                 2015  
 Ile Ile Ile Ala Leu Ile Leu Ser Asp Ile Asn Pro Leu Gly Lys Tyr  
                  2020                 2025                 2030  
 Arg Met Asp Leu Val Leu Gln Leu Lys Asn Asn Ala Ser Lys Leu Leu  
                  2035                 2040                 2045  
 Leu Ala Ile Met Glu Ser Arg His Asp Ser Glu Asn Ala Glu Arg Ile  
                  2050                 2055                 2060  
 Leu Phe Asn Met Arg Pro Lys Glu Leu Val Asp Val Met Lys Asn Ala  
                  2065                 2070                 2075                 2080  
 Tyr Asn Gln Gly Leu Glu Cys Asn His Gly Asp Glu Glu Gly Asp  
                  2085                 2090                 2095

Asp Gly Val Ser Pro Lys Asp Val Gly His Asn Ile Tyr Ile Leu Ala  
                  2100                 2105                 2110  
 His Gln Leu Ala Arg His Asn Lys Leu Leu Gln Gln Met Leu Lys Pro  
                  2115                 2120                 2125  
 Gly Ser Asp Pro Glu Glu Gly Asp Glu Ala Leu Lys Tyr Tyr Ala Asn  
                  2130                 2135                 2140  
 His Thr Ala Gln Ile Glu Ile Val Arg His Asp Arg Thr Met Glu Gln  
                  2145                 2150                 2155                 2160  
 Ile Val Phe Pro Val Pro Asn Ile Cys Glu Phe Leu Thr Arg Glu Ser  
                  2165                 2170                 2175  
 Lys Tyr Arg Val Phe Asn Thr Thr Glu Arg Asp Glu Gln Gly Ser Lys  
                  2180                 2185                 2190  
 Val Asn Asp Phe Phe Gln Gln Thr Glu Asp Leu Tyr Asn Glu Met Lys  
                  2195                 2200                 2205  
 Trp Gln Lys Lys Ile Arg Asn Asn Pro Ala Leu Phe Trp Phe Ser Arg  
                  2210                 2215                 2220  
 His Ile Ser Leu Trp Gly Ser Ile Ser Phe Asn Leu Ala Val Phe Ile  
                  2225                 2230                 2235                 2240  
 Asn Leu Ala Val Ala Leu Phe Tyr Pro Phe Gly Asp Asp Gly Asp Glu  
                  2245                 2250                 2255  
 Gly Thr Leu Ser Pro Leu Phe Ser Ala Leu Leu Trp Val Ala Val Ala  
                  2260                 2265                 2270  
 Ile Cys Thr Ser Met Leu Phe Phe Ser Lys Pro Val Gly Ile Arg  
                  2275                 2280                 2285  
 Pro Phe Leu Val Ser Ile Met Leu Arg Ser Ile Tyr Thr Ile Gly Leu  
                  2290                 2295                 2300  
 Gly Pro Thr Leu Ile Leu Gly Ala Ala Asn Leu Cys Asn Lys Ile  
                  2305                 2310                 2315                 2320  
 Val Phe Leu Val Ser Phe Val Gly Asn Arg Gly Thr Phe Thr Arg Gly  
                  2325                 2330                 2335  
 Tyr Arg Ala Val Ile Leu Asp Met Ala Phe Leu Tyr His Val Ala Tyr  
                  2340                 2345                 2350  
 Val Leu Val Cys Met Leu Gly Leu Phe Val His Glu Phe Phe Tyr Ser  
                  2355                 2360                 2365  
 Phe Leu Leu Phe Asp Leu Val Tyr Arg Glu Glu Thr Leu Leu Asn Val  
                  2370                 2375                 2380  
 Ile Lys Ser Val Thr Arg Asn Gly Arg Ser Ile Ile Leu Thr Ala Val  
                  2385                 2390                 2395                 2400  
 Leu Ala Leu Ile Leu Val Tyr Leu Phe Ser Ile Ile Gly Phe Leu Phe  
                  2405                 2410                 2415  
 Leu Lys Asp Asp Phe Thr Met Glu Val Asp Arg Leu Lys Asn Arg Thr  
                  2420                 2425                 2430  
 Pro Val Thr Gly Asn Asp Gly Val Pro Thr Met Thr Leu Thr Ser Met  
                  2435                 2440                 2445  
 Leu Gly Thr Cys Pro Lys Glu Asn Cys Ser Pro Thr Ile Pro Ser Ser  
                  2450                 2455                 2460  
 Asn Ala Ala Gly Glu Gly Glu Asp Gly Ile Glu Arg Thr Cys Asp  
                  2465                 2470                 2475                 2480  
 Thr Leu Leu Met Cys Ile Val Thr Val Leu Asn Gln Gly Leu Arg Asn  
                  2485                 2490                 2495  
 Gly Gly Gly Val Gly Asp Val Leu Arg Arg Pro Ser Lys Asp Glu Pro  
                  2500                 2505                 2510  
 Leu Phe Ala Ala Arg Val Val Tyr Asp Leu Leu Phe Phe Phe Ile Val  
                  2515                 2520                 2525  
 Ile Ile Ile Val Leu Asn Leu Ile Phe Gly Val Ile Ile Asp Thr Phe  
                  2530                 2535                 2540  
 Ala Asp Leu Arg Ser Glu Lys Gln Lys Lys Glu Lys Ile Leu Lys Thr  
                  2545                 2550                 2555                 2560  
 Thr Cys Phe Ile Cys Gly Leu Glu Arg Asp Lys Phe Asp Asn Lys Thr  
                  2565                 2570                 2575

Val Ser Phe Glu Glu His Ile Lys Ser Glu His Asn Met Trp His Tyr  
                  2580                 2585                 2590  
 Leu Tyr Phe Ile Val Leu Val Lys Val Lys Asp Pro Thr Glu Tyr Thr  
                  2595                 2600                 2605  
 Gly Pro Glu Ser Tyr Val Ala Gln Met Ile Thr Glu Lys Asn Leu Asp  
                  2610                 2615                 2620  
 Trp Phe Pro Arg Met Arg Ala Met Ser Leu Val Ser Asn Glu Gly Asp  
                  2625                 2630                 2635                 2640  
 Ser Glu Gln Asn Glu Ile Arg Asn Leu Gln Glu Lys Leu Glu Ser Thr  
                  2645                 2650                 2655  
 Met Ser Leu Val Lys Gln Leu Ser Gly Gln Leu Ala Glu Leu Lys Glu  
                  2660                 2665                 2670  
 Gln Met Thr Glu Gln Arg Lys Asn Lys Gln Arg Leu Gly Phe Leu Gly  
                  2675                 2680                 2685  
 Ser Asn Thr Pro His Glu Asn His His Met Pro Pro His  
                  2690                 2695                 2700

&lt;210&gt; 20

&lt;211&gt; 2670

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence:/note =  
synthetic construct

&lt;400&gt; 20

Met Asn Glu Met Ser Ser Phe Leu His Ile Gly Asp Ile Val Ser Leu  
     1              5                 10                 15  
 Tyr Ala Glu Gly Ser Val Asn Gly Phe Ile Ser Thr Leu Gly Leu Val  
     20             25                 30  
 Asp Asp Arg Cys Val Val Glu Pro Ala Ala Gly Asp Leu Asp Asn Pro  
     35             40                 45  
 Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Val Cys Pro Met Asn Arg  
     50             55                 60  
 Tyr Ser Ala Gln Lys Gln Tyr Trp Lys Ala Lys Gln Thr Lys Gln Asp  
     65             70                 75                 80  
 Lys Glu Lys Ile Ala Asp Val Val Leu Leu Gln Lys Leu Gln His Ala  
     85             90                 95  
 Ala Gln Met Glu Gln Lys Gln Asn Asp Thr Glu Asn Lys Lys Val His  
     100            105                 110  
 Gly Asp Val Val Lys Tyr Gly Ser Val Ile Gln Leu Leu His Met Lys  
     115            120                 125  
 Ser Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu  
     130            135                 140  
 Lys Asn Ala Met Arg Val Thr Leu Asp Ala Thr Gly Asn Glu Gly Ser  
     145            150                 155                 160  
 Trp Leu Phe Ile Gln Pro Phe Trp Lys Leu Arg Ser Asn Gly Asp Asn  
     165            170                 175  
 Val Val Val Gly Asp Lys Val Ile Leu Asn Pro Val Asn Ala Gly Gln  
     180            185                 190  
 Pro Leu His Ala Ser Asn Tyr Glu Leu Ser Asp Asn Val Gly Cys Lys  
     195            200                 205  
 Glu Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Asn Leu Phe  
     210            215                 220  
 Met Gln Phe Arg Asp His Leu Glu Glu Val Leu Lys Gly Gly Asp Val  
     225            230                 235                 240  
 Val Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu  
     245            250                 255

Tyr Arg Gly Lys Leu Gln Val Phe Leu Arg Thr Thr Leu Arg Gln Ser  
           260                 265                 270  
 Ala Thr Ser Ala Thr Ser Ser Asn Ala Leu Trp Glu Val Glu Val Val  
           275                 280                 285  
 His His Asp Pro Cys Arg Gly Gly Ala Gly His Trp Asn Gly Leu Tyr  
           290                 295                 300  
 Arg Phe Lys His Leu Ala Thr Gly Asn Tyr Leu Ala Ala Glu Glu Asn  
           305                 310                 315                 320  
 Pro Ser Tyr Lys Gly Asp Val Ser Asp Pro Lys Ala Ala Gly Pro Gly  
           325                 330                 335  
 Ala Gln Ser Arg Thr Gly Arg Arg Asn Ala Gly Glu Lys Ile Lys Tyr  
           340                 345                 350  
 Arg Leu Val Ala Val Pro His Gly Asn Asp Ile Ala Ser Leu Phe Glu  
           355                 360                 365  
 Leu Asp Pro Thr Thr Leu Gln Lys Thr Asp Ser Phe Val Pro Arg Asn  
           370                 375                 380  
 Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Ile Gln Ser  
           385                 390                 395                 400  
 Thr Asn Ala Pro Ile Asp Val Glu Glu Arg Pro Ile Arg Leu Met  
           405                 410                 415  
 Leu Gly Thr Cys Pro Thr Lys Glu Asp Lys Glu Ala Phe Ala Ile Val  
           420                 425                 430  
 Ser Val Pro Val Ser Glu Ile Arg Asp Leu Asp Phe Ala Asn Asp Ala  
           435                 440                 445  
 Ser Ser Met Leu Ala Ser Ala Val Glu Lys Leu Asn Glu Gly Phe Ile  
           450                 455                 460  
 Ser Gln Asn Asp Arg Arg Phe Val Ile Gln Leu Leu Glu Asp Leu Val  
           465                 470                 475                 480  
 Phe Phe Val Ser Asp Val Pro Asn Asn Gly Gln Asn Val Leu Asp Ile  
           485                 490                 495  
 Met Val Thr Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Asp Glu  
           500                 505                 510  
 Asn Ile Leu Lys Gln Ile Phe Gly Ile Leu Lys Ala Pro Phe Arg Asp  
           515                 520                 525  
 Lys Gly Gly Glu Gly Pro Leu Val Arg Leu Glu Leu Ser Asp Gln  
           530                 535                 540  
 Lys Asn Ala Pro Tyr Gln Tyr Met Phe Arg Leu Cys Tyr Arg Val Leu  
           545                 550                 555                 560  
 Arg His Ser Gln Glu Asp Tyr Arg Lys Asn Gln Glu His Ile Ala Lys  
           565                 570                 575  
 Gln Phe Gly Met Met Gln Ser Gln Ile Gly Tyr Asp Ile Leu Ala Glu  
           580                 585                 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
           595                 600                 605  
 His Ile Thr Lys Thr Glu Val Glu Thr Phe Val Ser Leu Val Arg Lys  
           610                 615                 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
           625                 630                 635                 640  
 Asn Arg Ile Ala Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Cys Val  
           645                 650                 655  
 Leu Asp Pro Lys Asn Ser Asp Ile Leu Ile Gln Thr Glu Leu Arg Pro  
           660                 665                 670  
 Val Lys Glu Met Ala Gln Ser His Glu Tyr Leu Ser Ile Glu Tyr Ser  
           675                 680                 685  
 Glu Glu Glu Val Trp Leu Thr Trp Thr Asp Arg Asn Asn Glu His His  
           690                 695                 700  
 Glu Lys Ser Val Arg Gln Leu Ala Gln Glu Ala Arg Ala Gly Asn Ala  
           705                 710                 715                 720  
 His Asp Glu Asn Val Leu Ser Tyr Tyr Arg Tyr Gln Leu Lys Leu Phe  
           725                 730                 735

Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile Asp Glu Ile Ser  
 740 745 750  
 Lys Gln Leu Gly Val Glu Leu Leu Phe Leu Cys Met Ala Asp Glu Met  
 755 760 765  
 Leu Pro Phe Asp Leu Arg Ala Ser Phe Cys His Leu Met Leu His Val  
 770 775 780  
 His Val Asp Arg Asp Pro Gln Glu Leu Val Thr Pro Val Lys Phe Ala  
 785 790 795 800  
 Arg Leu Trp Thr Glu Ile Pro Thr Ala Ile Thr Ile Lys Asp Tyr Asp  
 805 810 815  
 Ser Asn Leu Asn Ala Ser Arg Asp Asp Lys Lys Asn Lys Phe Ala Ser  
 820 825 830  
 Thr Met Glu Phe Val Glu Asp Tyr Leu Asn Asn Val Val Gly Glu Ala  
 835 840 845  
 Val Pro Phe Ala Asn Asp Glu Lys Asn Ile Leu Thr Phe Glu Val Val  
 850 855 860  
 Ser Leu Ala His Asn Leu Ile Tyr Phe Gly Phe Tyr Ser Phe Ser Glu  
 865 870 875 880  
 Leu Leu Arg Leu Thr Arg Thr Leu Leu Gly Ile Ile Asp Cys Ile Gln  
 885 890 895  
 Ala Pro Ala Ala Val Leu Gln Ala Tyr Glu Glu Pro Gly Gly Lys Asn  
 900 905 910  
 Val Arg Arg Ser Ile Gln Gly Val Gly His Met Met Ser Thr Met Val  
 915 920 925  
 Leu Ser Arg Lys Gln Ser Val Phe Gly Ala Ser Ser Leu Pro Thr Gly  
 930 935 940  
 Val Gly Val Pro Glu Gln Leu Asp Arg Ser Lys Phe Glu Asp Asn Glu  
 945 950 955 960  
 His Thr Val Val Met Glu Thr Lys Leu Lys Ile Leu Glu Ile Leu Gln  
 965 970 975  
 Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Tyr Leu Leu Ser  
 980 985 990  
 Val Phe Lys Glu Phe Val Glu Val Phe Pro Met Gln Asp Ser Gly  
 995 1000 1005  
 Ala Asp Gly Thr Ala Pro Ala Phe Asp Ser Ser Thr Ala Asn Met Asn  
 1010 1015 1020  
 Leu Asp Arg Ile Gly Glu Gln Ala Glu Ala Met Phe Gly Val Gly Lys  
 1025 1030 1035 1040  
 Thr Ser Ser Met Leu Glu Val Asp Asp Glu Gly Gly Arg Met Phe Leu  
 1045 1050 1055  
 Arg Val Leu Leu His Leu Thr Met His Asp Tyr Pro Pro Leu Val Ser  
 1060 1065 1070  
 Gly Ala Leu Gln Leu Leu Phe Lys His Phe Ser Gln Arg Gln Glu Ala  
 1075 1080 1085  
 Met His Thr Phe Lys Gln Val Gln Leu Leu Ile Ser Ala Gln Asp Val  
 1090 1095 1100  
 Glu Asn Tyr Lys Val Ile Lys Ser Glu Leu Asp Arg Leu Arg Thr Met  
 1105 1110 1115 1120  
 Val Glu Lys Ser Glu Leu Trp Val Asp Lys Lys Gly Ser Val Lys Gly  
 1125 1130 1135  
 Glu Glu Gly Glu Ala Gly Ala Ser Lys Asp Lys Lys Glu Arg Pro Ser  
 1140 1145 1150  
 Asp Glu Glu Gly Phe Leu Gln Pro His Gly Glu Lys Ser Ser Glu Asn  
 1155 1160 1165  
 Tyr Gln Ile Val Lys Gly Ile Leu Glu Arg Leu Asn Lys Met Cys Gly  
 1170 1175 1180  
 Val Gly Glu Gln Met Arg Lys Lys Gln Gln Arg Leu Leu Lys Asn Met  
 1185 1190 1195 1200  
 Asp Ala His Lys Val Met Leu Asp Leu Leu Gln Ile Pro Tyr Asp Lys  
 1205 1210 1215

Asn Asp Asn Lys Met Met Glu Ile Leu Arg Tyr Thr His Gln Phe Leu  
     1220                       1225                       1230  
 Gln Lys Phe Cys Ala Gly Asn Pro Gly Asn Gln Ala Leu Leu His Lys  
     1235                       1240                       1245  
 His Leu Gln Leu Phe Leu Thr Pro Gly Leu Leu Glu Ala Glu Thr Met  
     1250                       1255                       1260  
 Gln His Ile Phe Leu Asn Asn Tyr Gln Leu Cys Ser Glu Ile Ser Glu  
     1265                       1270                       1275                       1280  
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 cttggccgtc ctgatgaacc tgctgggtggc gttttctac ccatttaaag gagtggaggg 7140  
 aggaacacta gagccgcact ggtccggcctt cctgtggaca gccatgtca tctctctggc 7200  
 aattgtcatt ggcgtccca agccccatgg catccgggccc ttaattgtttt ctacaatcct 7260  
 acgactgata ttttcagttt gattacagcc cacactgtttt ctgctgggag ctttcaatgt 7320  
 ctgcaataaa atcatcttcc tgatgagctt tgtggcaac tgtgggacact tcaccagagg 7380  
 ctaccggagcc atggttctgg acgttgaggat cctctatcat ttgctgtatc tactgatctg 7440  
 tgccatgggc ctcttcgtac atgagttttt ctatagttt ctgctttttt atttagtgtt 7500  
 cagagaggag actttgcttta atgtcattttt aagtgtcacc cgcaatggac ggtccatcat 7560  
 cttgacagcgt gtcctggctc tgattctgtt ttacctgttc tcaattgtgg gctacctgtt 7620  
 cttcaaggat gactttatct tggaaagtaga caggttggccc aatgagacag ctggtccaga 7680  
 aactggtgag agttggcca acgatttcctt gtactctgtt gtgtgccgg tagagacggg 7740  
 ggagaactgc acctctccgg cacccaaaga agagctgctt cctgtggaaag aaacggaaaca 7800  
 ggataaggag cacacgtgtt agacactgtt catgtgcattt gtcaccgttc tgagtcacgg 7860  
 gctgcggagt gggggccgg taggagatgt gctcaggaag ccatccaaag aggagcctct 7920  
 gtttgcgtca agggtgatct atgacccctt cttcttcattt atggatcatca tcattgtcct 7980  
 gaaccccttattt tttgggggtca tcatcgacac ctttgcgttgc ctgaggatgtt agaaggcagaa 8040  
 gaaggaagag atcttaaaaaa ccacgtgtt catttgcgtt ttggaaaggaa acaagtttga 8100  
 caataagacc gtcaccccttgc aagagcacat taaggaagaa cacaacatgt ggcactatct 8160  
 gtgcttcattt gtgtgggttga aagtgaagga ctccaccggag tacaccgggc ccgagagctt 8220  
 cgtggcagag atgatcaggaa aagaaaacccctt tgattgggttccc cccaggatgtt gagccatgtc 8280  
 cttggctcaggc agtgcattttt aagggggacca gaacggatgtt aggaaccccttgc aggagaagct 8340  
 ggagtccacc atgaagctgg tcaccaatctt ttctggccatgtt ctgtcagaac taaaggacca 8400  
 gatgacagaaa caaaggaaagc agaaaacaaag aattggccattt cttaggatcatc ctccctcacat 8460  
 gaatgtcaac ccacagcaggc cagccctaaatc aatggatgtt gagggactgtt actcaaccctt 8520  
 ttttaattttt ttgtcagcgtt ggggtctggctt cttgggttgc atctgccttc taaggatgtt 8580  
 tggcgcttgc ttgtcattttt aataactctgg ttttttattt tatgtatgtt attgcaattt 8640  
 tcagaggatggggacttcgtt attgtatattt gtcctgttgc catggatgtt tgactcactt 8700  
 gccaaaaata ttaaaaatgc cttttttggc aggactacag aaagtacccctt atttgcactt 8760  
 gaaccagattt atagattttaa aagtatgtt catgtatattt gtatttttttt ctagaatagc 8820  
 cagtttttat gttttttataa aactgtgtca atacaaatattt tgcacccatc accaaactctgt 8880  
 aactccctgag tgccttaagg gaggcgcattt ctttgcgtt gatctgttta tactttatgtt 8940  
 ataaatggttt aaatatcaaa tgatgtatgtt gtcggccaaaa ttatattat agcaagtttcc 9000  
 tggccctggc gcaattttgtt accttgcattt tattccatgtt tgatgtgtt tctcggttgc 9060

aatggcatta gtgcctcgta tcctagtat aactccaggt ctgtgaacca ttcaaacaac 9120  
 attcattttt gagacaaaagc aacttttagtt tcaagggtaa ttttaagctt caaaaattaat 9180  
 catttaaat atttctttaa gagagccatg ttagaggctc acacgttagc ttgaaaggag 9240  
 tcgatgaaat aattttttta aagggaaactt tttacacgac gtttggata acagcatatt 9300  
 gctgaccagt cagtgtcatc tcccaggtga attttgatgt cacgttatag tcaaatgagc 9360  
 tagctgatgg tttctagatt ctcttcatct gaaccaacat gatgcagtagt gtgagaagtt 9420  
 attatgcata tatacacata tacatccata taaggcaaag taggagctgt ccccttagga 9480  
 tgcatagctg ccccccttagg gtgcagagct caacactgac agtgctgttc tgagagagcc 9540  
 acgtttgggt tttatttctt tgcacatga tttctttctt ggatgtgtgc aagtataaca 9600  
 ggaagtgttt tctacctgtt gcttgtttt tacctgggtc tcgtttact agaccatctc 9660  
 tgcacaaaag tttaaaaaat gaaccgtaaag cagagttctg aagcaagtca agtttgtaaag 9720  
 tgcatacctg aaattattta ataaatgacg cagaatact 9759

<210> 23  
 <211> 2710  
 <212> PRT  
 <213> Artifical Sequence

<220>  
 <223> Description of Artificial Sequence; Note =  
 synthetic construct

<400> 23  
 Met Ser Asp Lys Met Ser Ser Phe Leu His Ile Gly Asp Ile Cys Ser  
 1 5 10 15  
 Leu Tyr Ala Glu Gly Ser Thr Asn Gly Phe Ile Ser Thr Leu Gly Leu  
 20 25 30  
 Val Asp Asp Arg Cys Val Val Gln Pro Glu Ala Gly Asp Leu Asn Asn  
 35 40 45  
 Pro Pro Lys Lys Phe Arg Asp Cys Leu Phe Lys Leu Cys Pro Met Asn  
 50 55 60  
 Arg Tyr Ser Ala Gln Lys Gln Phe Trp Lys Ala Ala Lys Pro Gly Ala  
 65 70 75 80  
 Asn Ser Thr Thr Asp Ala Val Leu Leu Asn Lys Leu His His Ala Ala  
 85 90 95  
 Asp Leu Glu Lys Lys Gln Asn Glu Thr Glu Asn Arg Lys Leu Leu Gly  
 100 105 110  
 Thr Val Ile Gln Tyr Gly Asn Val Ile Gln Leu Leu His Leu Lys Ser  
 115 120 125  
 Asn Lys Tyr Leu Thr Val Asn Lys Arg Leu Pro Ala Leu Leu Glu Lys  
 130 135 140  
 Asn Ala Met Arg Val Thr Leu Asp Glu Ala Gly Asn Glu Gly Ser Trp  
 145 150 155 160  
 Phe Tyr Ile Gln Pro Phe Tyr Lys Leu Arg Ser Ile Gly Asp Ser Val  
 165 170 175  
 Val Ile Gly Asp Lys Val Val Leu Asn Pro Val Asn Ala Gly Gln Pro  
 180 185 190  
 Leu His Ala Ser Ser His Gln Leu Val Asp Asn Pro Gly Cys Asn Glu  
 195 200 205  
 Val Asn Ser Val Asn Cys Asn Thr Ser Trp Lys Ile Val Leu Phe Met  
 210 215 220  
 Lys Trp Ser Asp Asn Lys Asp Asp Ile Leu Lys Gly Gly Asp Val Val  
 225 230 235 240  
 Arg Leu Phe His Ala Glu Gln Glu Lys Phe Leu Thr Cys Asp Glu His  
 245 250 255  
 Arg Lys Lys Gln His Val Phe Leu Arg Thr Thr Gly Arg Gln Ser Ala  
 260 265 270  
 Thr Ser Ala Thr Ser Ser Lys Ala Leu Trp Glu Val Glu Val Val Gln  
 275 280 285

His Asp Pro Cys Arg Gly Gly Ala Gly Tyr Trp Asn Ser Leu Phe Arg  
 290 295 300  
 Phe Lys His Leu Ala Thr Gly His Tyr Leu Ala Ala Glu Val Asp Pro  
 305 310 315 320  
 Asp Phe Glu Glu Glu Cys Leu Glu Phe Gln Pro Ser Val Asp Pro Asp  
 325 330 335  
 Gln Asp Ala Ser Arg Ser Arg Leu Arg Asn Ala Gln Glu Lys Met Val  
 340 345 350  
 Tyr Ser Leu Val Ser Val Pro Glu Gly Asn Asp Ile Ser Ser Ile Phe  
 355 360 365  
 Glu Leu Asp Pro Thr Thr Leu Arg Gly Gly Asp Ser Leu Val Pro Arg  
 370 375 380  
 Asn Ser Tyr Val Arg Leu Arg His Leu Cys Thr Asn Thr Trp Val His  
 385 390 395 400  
 Ser Thr Asn Ile Pro Ile Asp Lys Glu Glu Lys Pro Val Met Leu  
 405 410 415  
 Lys Ile Gly Thr Ser Pro Leu Lys Glu Asp Lys Glu Ala Phe Ala Ile  
 420 425 430  
 Val Pro Val Ser Pro Ala Glu Val Arg Asp Leu Asp Phe Ala Asn Asp  
 435 440 445  
 Ala Ser Lys Val Leu Gly Ser Ile Ala Gly Lys Leu Glu Lys Gly Thr  
 450 455 460  
 Ile Thr Gln Asn Glu Arg Arg Ser Val Thr Lys Leu Leu Glu Asp Leu  
 465 470 475 480  
 Val Tyr Phe Val Thr Gly Gly Thr Asn Ser Gly Gln Asp Val Leu Glu  
 485 490 495  
 Val Val Phe Ser Lys Pro Asn Arg Glu Arg Gln Lys Leu Met Arg Glu  
 500 505 510  
 Gln Asn Ile Leu Lys Gln Ile Phe Lys Leu Leu Gln Ala Pro Phe Thr  
 515 520 525  
 Asp Cys Gly Asp Gly Pro Met Leu Arg Leu Glu Leu Gly Asp Gln  
 530 535 540  
 Arg His Ala Pro Phe Arg His Ile Cys Arg Leu Cys Tyr Arg Val Leu  
 545 550 555 560  
 Arg His Ser Gln Gln Asp Tyr Arg Lys Asn Gln Glu Tyr Ile Ala Lys  
 565 570 575  
 Gln Phe Gly Phe Met Gln Lys Gln Ile Gly Tyr Asp Val Leu Ala Glu  
 580 585 590  
 Asp Thr Ile Thr Ala Leu Leu His Asn Asn Arg Lys Leu Leu Glu Lys  
 595 600 605  
 His Ile Thr Ala Ala Glu Ile Asp Thr Phe Val Ser Leu Val Arg Lys  
 610 615 620  
 Asn Arg Glu Pro Arg Phe Leu Asp Tyr Leu Ser Asp Leu Cys Val Ser  
 625 630 635 640  
 Met Asn Lys Ser Ile Pro Val Thr Gln Glu Leu Ile Cys Lys Ala Val  
 645 650 655  
 Leu Asn Pro Thr Asn Ala Asp Ile Leu Ile Glu Thr Lys Leu Val Leu  
 660 665 670  
 Ser Arg Phe Glu Phe Glu Gly Val Ser Thr Gly Glu Asn Ala Leu Glu  
 675 680 685  
 Ala Gly Glu Asp Glu Glu Val Trp Leu Phe Trp Arg Asp Ser Asn  
 690 695 700  
 Lys Glu Ile Arg Ser Lys Ser Val Arg Glu Leu Ala Gln Asp Ala Lys  
 705 710 715 720  
 Glu Gly Gln Lys Glu Asp Arg Asp Val Leu Ser Tyr Tyr Arg Tyr Gln  
 725 730 735  
 Leu Asn Leu Phe Ala Arg Met Cys Leu Asp Arg Gln Tyr Leu Ala Ile  
 740 745 750  
 Asn Glu Ile Ser Gly Gln Leu Asp Val Asp Leu Ile Leu Arg Cys Met  
 755 760 765

Ser Asp Glu Asn Leu Pro Tyr Asp Leu Arg Ala Ser Phe Cys Arg Leu  
 770 775 780  
 Met Leu His Met His Val Asp Arg Asp Pro Gln Glu Gln Val Thr Pro  
 785 790 795 800  
 Val Lys Tyr Ala Arg Leu Trp Ser Glu Ile Pro Ser Glu Ile Ala Ile  
 805 810 815  
 Asp Asp Tyr Asp Ser Ser Gly Ala Ser Lys Asp Glu Ile Lys Glu Arg  
 820 825 830  
 Phe Ala Gln Thr Met Glu Phe Val Glu Glu Tyr Leu Arg Asp Val Val  
 835 840 845  
 Cys Gln Arg Phe Pro Phe Ser Asp Lys Glu Lys Asn Lys Leu Thr Phe  
 850 855 860  
 Glu Val Val Asn Leu Ala Arg Asn Leu Ile Tyr Phe Gly Phe Tyr Asn  
 865 870 875 880  
 Phe Ser Asp Leu Leu Arg Leu Thr Lys Ile Leu Leu Ala Ile Leu Asp  
 885 890 895  
 Cys Val His Val Thr Thr Ile Phe Pro Ile Ser Lys Met Thr Lys Gly  
 900 905 910  
 Glu Glu Asn Lys Gly Ser Asn Val Met Arg Ser Ile His Gly Val Gly  
 915 920 925  
 Glu Leu Met Thr Gln Val Val Leu Arg Gly Gly Phe Leu Pro Met  
 930 935 940  
 Thr Pro Met Ala Ala Ala Pro Glu Gly Asn Val Lys Gln Ala Glu Pro  
 945 950 955 960  
 Glu Lys Glu Asp Ile Met Val Met Asp Thr Lys Leu Lys Ile Ile Glu  
 965 970 975  
 Ile Leu Gln Phe Ile Leu Asn Val Arg Leu Asp Tyr Arg Ile Ser Cys  
 980 985 990  
 Leu Leu Cys Ile Phe Lys Arg Glu Phe Asp Glu Ser Asn Ser Gln Ser  
 995 1000 1005  
 Ser Glu Thr Ser Ser Gly Asn Ser Ser Gln Glu Gly Pro Ser Asn Val  
 1010 1015 1020  
 Pro Gly Ala Leu Asp Phe Glu His Ile Glu Glu Gln Ala Glu Gly Ile  
 1025 1030 1035 1040  
 Phe Gly Gly Ser Glu Glu Asn Thr Pro Leu Asp Leu Asp Asp His Gly  
 1045 1050 1055  
 Gly Arg Thr Phe Leu Arg Val Leu Leu His Leu Thr Met His Asp Tyr  
 1060 1065 1070  
 Pro Pro Leu Val Ser Gly Ala Leu Gln Leu Leu Phe Arg His Phe Ser  
 1075 1080 1085  
 Gln Arg Gln Glu Val Leu Gln Ala Phe Lys Gln Val Gln Leu Leu Val  
 1090 1095 1100  
 Thr Ser Gln Asp Val Asp Asn Tyr Lys Gln Ile Lys Gln Asp Leu Asp  
 1105 1110 1115 1120  
 Gln Leu Arg Ser Ile Val Glu Lys Ser Glu Leu Trp Val Tyr Lys Gly  
 1125 1130 1135  
 Gln Gly Pro Asp Glu Pro Met Asp Gly Ala Ser Gly Glu Asn Glu His  
 1140 1145 1150  
 Lys Lys Thr Glu Glu Gly Thr Ser Lys Pro Leu Lys His Glu Ser Thr  
 1155 1160 1165  
 Ser Ser Tyr Asn Tyr Arg Val Val Lys Glu Ile Leu Ile Arg Leu Ser  
 1170 1175 1180  
 Lys Leu Cys Val Gln Glu Ser Ala Ser Val Arg Lys Ser Arg Lys Gln  
 1185 1190 1195 1200  
 Gln Gln Arg Leu Leu Arg Asn Met Gly Ala His Ala Val Val Leu Glu  
 1205 1210 1215  
 Leu Leu Gln Ile Pro Tyr Glu Lys Ala Glu Asp Thr Lys Met Gln Glu  
 1220 1225 1230  
 Ile Met Arg Leu Ala His Glu Phe Leu Gln Asn Phe Cys Ala Gly Asn  
 1235 1240 1245

Gln Gln Asn Gln Ala Leu Leu His His Ile Asn Leu Phe Leu Asn  
 1250 1255 1260  
 Pro Gly Ile Leu Glu Ala Val Thr Met Gln His Ile Phe Met Asn Asn  
 1265 1270 1275 1280  
 Phe Gln Leu Cys Ser Glu Ile Asn Glu Arg Val Val Gln His Phe Val  
 1285 1290 1295  
 His Cys Ile Glu Thr His Gly Arg Asn Val Gln Tyr Ile Lys Phe Leu  
 1300 1305 1310  
 Gln Thr Ile Val Lys Ala Glu Gly Lys Phe Ile Lys Lys Cys Gln Asp  
 1315 1320 1325  
 Met Val Met Ala Glu Leu Val Asn Ser Gly Glu Asp Val Leu Val Phe  
 1330 1335 1340  
 Tyr Asn Asp Arg Ala Ser Phe Gln Thr Leu Ile Gln Met Met Arg Ser  
 1345 1350 1355 1360  
 Glu Arg Asp Arg Met Asp Glu Asn Ser Pro Leu Phe Met Tyr His Ile  
 1365 1370 1375  
 His Leu Val Glu Leu Leu Ala Val Cys Thr Glu Gly Lys Asn Val Tyr  
 1380 1385 1390  
 Thr Glu Ile Lys Cys Asn Ser Leu Leu Pro Leu Asp Asp Ile Val Arg  
 1395 1400 1405  
 Val Val Thr His Glu Asp Cys Ile Pro Glu Val Lys Ile Ala Tyr Ile  
 1410 1415 1420  
 Asn Phe Leu Asn His Cys Tyr Val Asp Thr Glu Val Glu Met Lys Glu  
 1425 1430 1435 1440  
 Ile Tyr Thr Ser Asn His Met Trp Lys Leu Phe Glu Asn Phe Leu Val  
 1445 1450 1455  
 Asp Ile Cys Arg Ala Cys Asn Asn Thr Ser Asp Arg Lys His Ala Asp  
 1460 1465 1470  
 Ser Val Leu Glu Lys Tyr Val Thr Glu Ile Val Met Ser Ile Val Thr  
 1475 1480 1485  
 Thr Phe Phe Ser Ser Pro Phe Ser Asp Gln Ser Thr Thr Leu Gln Thr  
 1490 1495 1500  
 Arg Gln Pro Val Phe Val Gln Leu Leu Gln Gly Val Phe Arg Val Tyr  
 1505 1510 1515 1520  
 His Cys Asn Trp Leu Met Pro Ser Gln Lys Ala Ser Val Glu Ser Cys  
 1525 1530 1535  
 Ile Arg Val Leu Ser Asp Val Ala Lys Ser Arg Ala Ile Ala Ile Pro  
 1540 1545 1550  
 Val Asp Leu Asp Ser Gln Val Asn Asn Leu Phe Leu Lys Ser His Asn  
 1555 1560 1565  
 Ile Val Gln Lys Thr Ala Met Asn Trp Arg Leu Ser Ala Arg Asn Ala  
 1570 1575 1580  
 Ala Arg Arg Asp Ser Val Leu Ala Ala Ser Arg Asp Tyr Arg Asn Ile  
 1585 1590 1595 1600  
 Ile Glu Arg Leu Gln Asp Ile Val Ser Ala Leu Glu Asp Arg Leu Arg  
 1605 1610 1615  
 Pro Leu Val Gln Ala Glu Leu Ser Val Leu Val Asp Val Leu His Arg  
 1620 1625 1630  
 Pro Glu Leu Leu Phe Pro Glu Asn Thr Asp Ala Arg Arg Lys Cys Glu  
 1635 1640 1645  
 Ser Gly Gly Phe Ile Cys Lys Leu Ile Lys His Thr Lys Gln Leu Leu  
 1650 1655 1660  
 Glu Glu Asn Glu Glu Lys Leu Cys Ile Lys Val Leu Gln Thr Leu Arg  
 1665 1670 1675 1680  
 Glu Met Met Thr Lys Asp Arg Gly Tyr Ala Glu Lys Gly Glu Ala Leu  
 1685 1690 1695  
 Arg Gln Ile Leu Val Asn Arg Tyr Tyr Gly Asn Ile Arg Pro Ser Gly  
 1700 1705 1710  
 Arg Arg Glu Ser Leu Thr Ser Phe Gly Asn Gly Pro Leu Ser Pro Gly  
 1715 1720 1725

Gly Pro Ser Lys Pro Gly Gly Gly Gly Gly Pro Gly Ser Gly Ser  
 1730 1735 1740  
 Thr Ser Arg Gly Glu Met Ser Leu Ala Glu Val Gln Cys His Leu Asp  
 1745 1750 1755 1760  
 Lys Glu Gly Ala Ser Asn Leu Val Ile Asp Leu Ile Met Asn Ala Ser  
 1765 1770 1775  
 Ser Asp Arg Val Phe His Glu Ser Ile Leu Leu Ala Ile Ala Leu Leu  
 1780 1785 1790  
 Glu Gly Gly Asn Thr Thr Ile Gln His Ser Phe Phe Cys Arg Leu Thr  
 1795 1800 1805  
 Glu Asp Lys Lys Ser Glu Lys Phe Phe Lys Val Phe Tyr Asp Arg Met  
 1810 1815 1820  
 Lys Val Ala Gln Gln Glu Ile Lys Ala Thr Val Thr Val Asn Thr Ser  
 1825 1830 1835 1840  
 Asp Leu Gly Asn Lys Lys Asp Asp Glu Val Asp Arg Asp Ala Pro  
 1845 1850 1855  
 Ser Arg Lys Lys Ala Lys Glu Pro Thr Thr Gln Ile Thr Glu Glu Val  
 1860 1865 1870  
 Arg Asp Gln Leu Leu Glu Ala Ser Ala Ala Thr Arg Lys Ala Phe Thr  
 1875 1880 1885  
 Thr Phe Arg Arg Glu Ala Asp Pro Asp Asp His Tyr Gln Ser Gly Glu  
 1890 1895 1900  
 Gly Thr Gln Ala Thr Thr Asp Lys Ala Lys Asp Asp Leu Glu Met Ser  
 1905 1910 1915 1920  
 Ala Val Ile Thr Ile Met Gln Pro Ile Leu Arg Phe Leu Gln Leu Leu  
 1925 1930 1935  
 Cys Glu Asn His Asn Arg Asp Leu Gln Asn Phe Leu Arg Cys Gln Asn  
 1940 1945 1950  
 Asn Lys Thr Asn Tyr Asn Leu Val Cys Glu Thr Leu Gln Phe Leu Asp  
 1955 1960 1965  
 Cys Ile Cys Gly Ser Thr Thr Gly Gly Leu Gly Leu Leu Gly Leu Tyr  
 1970 1975 1980  
 Ile Asn Glu Lys Asn Val Ala Leu Ile Asn Gln Thr Leu Glu Ser Leu  
 1985 1990 1995 2000  
 Thr Glu Tyr Cys Gln Gly Pro Cys His Glu Asn Gln Asn Cys Ile Ala  
 2005 2010 2015  
 Thr His Glu Ser Asn Gly Ile Asp Ile Ile Thr Ala Leu Ile Leu Asn  
 2020 2025 2030  
 Asp Ile Asn Pro Leu Gly Lys Lys Arg Met Asp Leu Val Leu Glu Leu  
 2035 2040 2045  
 Lys Asn Asn Ala Ser Lys Leu Leu Leu Ala Ile Met Glu Ser Arg His  
 2050 2055 2060  
 Asp Ser Glu Asn Ala Glu Arg Ile Leu Tyr Asn Met Arg Pro Lys Glu  
 2065 2070 2075 2080  
 Leu Val Glu Val Ile Lys Lys Ala Tyr Met Gln Gly Glu Val Glu Phe  
 2085 2090 2095  
 Glu Asp Gly Glu Asn Gly Glu Asp Gly Ala Ala Ser Pro Arg Asn Val  
 2100 2105 2110  
 Gly His Asn Ile Tyr Ile Leu Ala His Gln Leu Ala Arg His Asn Lys  
 2115 2120 2125  
 Glu Leu Gln Thr Met Leu Lys Pro Gly Gly Gln Val Asp Gly Asp Glu  
 2130 2135 2140  
 Ala Leu Glu Phe Tyr Ala Lys His Thr Ala Gln Ile Glu Ile Val Arg  
 2145 2150 2155 2160  
 Leu Asp Arg Thr Met Glu Gln Ile Val Phe Pro Val Pro Ser Ile Cys  
 2165 2170 2175  
 Glu Phe Leu Thr Lys Glu Ser Lys Leu Arg Ile Tyr Tyr Thr Thr Glu  
 2180 2185 2190  
 Arg Asp Glu Gln Gly Ser Lys Ile Asn Asp Phe Phe Leu Arg Ser Glu  
 2195 2200 2205

Asp Leu Phe Asn Glu Met Asn Trp Gln Lys Lys Leu Arg Ala Gln Pro  
 2210 2215 2220  
 Val Leu Tyr Trp Cys Ala Arg Asn Met Ser Phe Trp Ser Ser Ile Ser  
 2225 2230 2235 2240  
 Phe Asn Leu Ala Val Leu Met Asn Leu Leu Val Ala Phe Phe Tyr Pro  
 2245 2250 2255  
 Phe Lys Gly Val Arg Gly Gly Thr Leu Glu Pro His Trp Ser Gly Leu  
 2260 2265 2270  
 Leu Trp Thr Ala Met Leu Ile Ser Leu Ala Ile Val Ile Ala Leu Pro  
 2275 2280 2285  
 Lys Pro His Gly Ile Arg Ala Leu Ile Ala Ser Thr Ile Leu Arg Leu  
 2290 2295 2300  
 Ile Phe Ser Val Gly Leu Gln Pro Thr Leu Phe Leu Leu Gly Ala Phe  
 2305 2310 2315 2320  
 Asn Val Cys Asn Lys Ile Ile Phe Leu Met Ser Phe Val Gly Asn Cys  
 2325 2330 2335  
 Gly Thr Phe Thr Arg Gly Tyr Arg Ala Met Val Leu Asp Val Glu Phe  
 2340 2345 2350  
 Leu Tyr His Leu Leu Tyr Leu Leu Ile Cys Ala Met Gly Leu Phe Val  
 2355 2360 2365  
 His Glu Phe Phe Tyr Ser Leu Leu Phe Asp Leu Val Tyr Arg Glu  
 2370 2375 2380  
 Glu Thr Leu Leu Asn Val Ile Lys Ser Val Thr Arg Asn Gly Arg Pro  
 2385 2390 2395 2400  
 Ile Ile Leu Thr Ala Ala Leu Leu Ile Leu Val Tyr Leu Phe Ser  
 2405 2410 2415  
 Ile Val Gly Tyr Leu Phe Phe Lys Asp Asp Phe Ile Leu Glu Val Asp  
 2420 2425 2430  
 Arg Leu Pro Asn Glu Thr Ala Gly Pro Glu Thr Gly Glu Ser Leu Ala  
 2435 2440 2445  
 Asn Asp Phe Leu Tyr Ser Asp Val Cys Arg Val Glu Thr Gly Glu Asn  
 2450 2455 2460  
 Cys Thr Ser Pro Ala Pro Lys Glu Glu Leu Leu Pro Val Glu Glu Thr  
 2465 2470 2475 2480  
 Glu Gln Asp Lys Glu His Thr Cys Glu Thr Leu Leu Met Cys Ile Val  
 2485 2490 2495  
 Thr Val Leu Ser His Gly Leu Arg Ser Gly Gly Val Gly Asp Val  
 2500 2505 2510  
 Leu Arg Lys Pro Ser Lys Glu Glu Pro Leu Phe Ala Ala Arg Val Ile  
 2515 2520 2525  
 Tyr Asp Leu Leu Phe Phe Phe Met Val Ile Ile Val Leu Asn Leu  
 2530 2535 2540  
 Ile Phe Gly Val Ile Ile Asp Thr Phe Ala Asp Leu Arg Ser Glu Lys  
 2545 2550 2555 2560  
 Gln Lys Lys Glu Glu Ile Leu Lys Thr Thr Cys Phe Ile Cys Gly Leu  
 2565 2570 2575  
 Glu Arg Asp Lys Phe Asp Asn Lys Thr Val Thr Phe Glu Glu His Ile  
 2580 2585 2590  
 Lys Glu Glu His Asn Met Trp His Tyr Leu Cys Phe Ile Val Leu Val  
 2595 2600 2605  
 Lys Val Lys Asp Ser Thr Glu Tyr Thr Gly Pro Glu Ser Tyr Val Ala  
 2610 2615 2620  
 Glu Met Ile Arg Glu Arg Asn Leu Asp Trp Phe Pro Arg Met Arg Ala  
 2625 2630 2635 2640  
 Met Ser Leu Val Ser Ser Asp Ser Glu Gly Glu Gln Asn Glu Leu Arg  
 2645 2650 2655  
 Asn Leu Gln Glu Lys Leu Glu Ser Thr Met Lys Leu Val Thr Asn Leu  
 2660 2665 2670  
 Ser Gly Gln Leu Ser Glu Leu Lys Asp Gln Met Thr Glu Gln Arg Lys  
 2675 2680 2685

Gln Lys Gln Arg Ile Gly Leu Leu Gly His Pro Pro His Met Asn Val

2690

2695

2700

Asn Pro Gln Gln Pro Ala

2705

2710

<210> 24

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence; note =  
synthetic construct

<220>

<221> VARIANT

<222> 2, 4, 5

<223> Xaa = any amino acid

<400> 24

Gly Xaa Gly Xaa Xaa Gly

1

5

<210> 25

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 25

Arg Arg Asp Ser

1

<210> 26

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 26

Arg Arg Glu Ser

1

<210> 27

<211> 4

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 27

Arg Arg Asp Glu

1

<210> 28  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 28  
Arg Arg Glu Glu  
1

<210> 29  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 29  
Arg Arg Glu Ala  
1

<210> 30  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 30  
Arg Arg Asp Ala  
1

<210> 31  
<211> 48  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence; note =  
synthetic construct

<400> 31  
Gly Tyr Gly Glu Lys Gln Ile Ser Ile Asp Glu Leu Glu Asn Ala Glu  
1 5 10 15  
Leu Pro Gln Pro Pro Glu Ala Glu Asn Ser Thr Glu Glu Leu Glu Pro  
20 25 30  
Ser Pro Pro Leu Arg Gln Leu Glu Asp His Lys Arg Gly Glu Ala Leu  
35 40 45

<210> 32  
<211> 9  
<212> PRT  
<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence; note =  
synthetic construct

&lt;400&gt; 32

Gly Tyr Gly Glu Lys Gly Glu Ala Leu  
1                      5